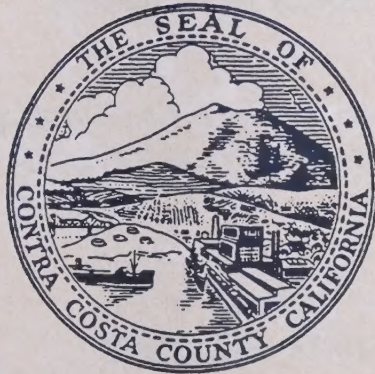


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## **DRAFT ENVIRONMENTAL IMPACT REPORT**

### **DOUGHERTY VALLEY GENERAL PLAN AMENDMENT, SPECIFIC PLAN, AND RELATED ACTIONS**

**COUNTY FILE #2-91-SR**

**SCH #91053014**

**JUNE 1992**







Draft  
Environmental Impact Report

Dougherty Valley General Plan Amendment,  
Specific Plan, and Related Actions

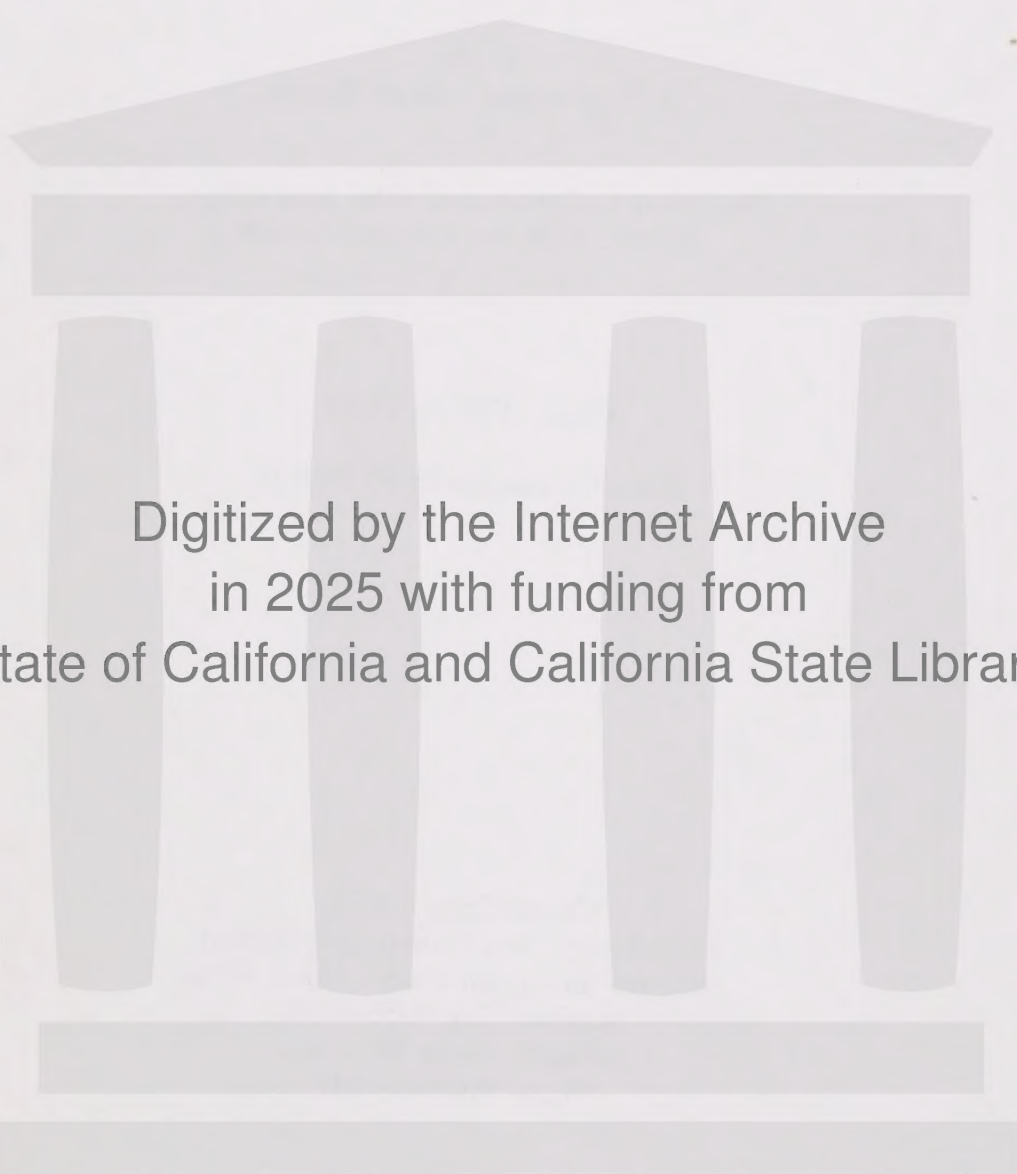
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June 1992





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## List of Acronyms

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ABAG	Association of Bay Area Governments
ACFCWCD	Alameda County Flood Control and Water Conservation District
ADNL	annual day-night noise level
ADTs	average daily trips
af/yr	acre-feet of water per year
af	acre-feet
AR	Army Regulation
As	attractions
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
Camp Parks	U.S. Army Parks Reserve Forces Training Area
CBD	central business district
CCCCD	Contra Costa Community College District
CCCFCWCD	Contra Costa County Flood Control and Water Conservation District
CCCSD	Contra Costa County Sheriff's Department
CCCTA	Central Contra Costa Transit Authority
CCTA	Contra Costa Transportation Authority
CDMG	California Division of Mines and Geology
Central San	Central Contra Costa Sanitary District
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CHP	California Highway Patrol
CMAAs	Congestion Management Agenices
CMP	Congestion Management Program
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
Corps	U.S. Army Corps of Engineers
County	Contra Costa County
DAs	development agreements
dB	decibel
dBA	A-weighted dB scale
DFG	California Department of Fish and Game
DHS	Department of Health Services
DOD	Department of Defense
DSRSD	Dublin-San Ramon Services District
du/na	dwelling units per net acre
DVSP	Dougherty Valley Draft Specific Plan
DVGMSP	Dougherty Valley Growth Management and Specific Plan
DVM	Dougherty Valley Model

EBMUD	East Bay Municipal Utilities District
EBRPD	East Bay Regional Parks District
ECRP	erosion control and rehabilitation plan
EIR	environmental impact report
EMFs	Electromagnetic fields
EPA	U.S. Environmental Protection Agency
EPRI	Electric Power Research Institute
EPS	Economic and Planning Systems
ET	evapo-transpiration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
general plan	Contra Costa County General Plan
GHAD	Geological Hazard Abatement District
GPA	general plan amendment
gpm	gallons per minute
HTA	Harlan-Tait Associates
HOV	high-occupancy-vehicle
I-580	Interstate 580
I-680	Interstate 680
ICUZ	installation compatible use zone
ISO	Insurance Services Office
kV	kilovolt
LAFCO	Local Agency Formation Commission
LAVPUGP	Livermore-Amador Valley Planning Unit General Plan
LAVWMA	Livermore-Amador Valley Water Management Agency
$L_{dn}$	day-night average sound level
$L_{eq}$	Noise level equivalents
LLRSPA	Lawrence-Leema Road Specific Plan Area
LOS	level of service
LPS	Land Preservation Standard
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
MOU	memorandum of understanding
MTC	Metropolitan Transportation Commission
na	net acre
NOP	notice of preparation
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSR	New Source Review
NURP	Nationwide Urban Runoff Program
PG&E	Pacific Gas and Electric Company
$PM_{10}$	particulate matter smaller than 10 microns in diameter
ppm	parts per million
Ps	productions
RDM	residual dry matter
ROW	right-of-way
RWQCB	regional water quality control board



SRO	Single Room Occupancy
SRVFPD	San Ramon Valley Fire Protection District
SRVUSD	San Ramon Valley Unified School District
SWP	State Water Project
SWRCB	California State Water Resources Control Board
TAZs	traffic analysis zones
TJKM	TJKM Transportation Consultants
tpd	tons of solid waste per day
TSM	transportation systems management
TWA	Tri-Valley Wastewater Authority
ULL	urban limit line
USGS	U.S. Geological Survey
VAC	Visual absorption capability





# **Chapter 1. Introduction**

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## **BACKGROUND**

The proposed Dougherty Valley Specific Plan (DVSP) (PBR 1992) has been prepared to guide development of almost 6,000 acres located in southcentral Contra Costa County. The proposed DVSP and the General Plan Amendment (GPA), along with the proposed general plan amendments and related actions described below (collectively, the "project"), would provide for the construction of up to 11,000 homes, and supporting commercial, office, civic, and open space land uses. If approved, this development would be the largest single project in Contra Costa County history (Cutler pers. comm.).

The Dougherty Valley project is significant for several environmental and social reasons. It promises to provide a substantial new addition to the housing stock of the Tri-Valley region of Contra Costa and Alameda Counties that could help address important jobs/housing balance considerations and deliver part of the region's "fair share" of housing affordable to low-income and moderate-income households. However, the project also has several significant and large-scale environmental impacts associated with its development.

## **PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT**

CEQA requires that all State and local government agencies consider the environmental consequences of projects over which they have discretionary authority. Approval and construction of the DVSP and GPA and related entitlements constitutes a "project" under CEQA.

This draft environmental impact report (EIR) has been prepared to assess the impacts of the Dougherty Valley Specific Plan project, pursuant to the California Environmental Quality Act (CEQA) (Pub. Res. Code, Section 21000 et seq.), the State CEQA Guidelines (14 CCR 15000 et seq.), and the Contra Costa County (County) environmental review guidelines.

The EIR is a public document used to analyze the environmental effects of the approval, operation, and implementation of the proposed project; indicate ways to reduce or avoid possible environmental damage; and identify alternatives to the project. The EIR also must disclose significant environmental impacts that cannot be avoided, growth-inducing impacts, effects found not to be significant, and significant cumulative impacts of past, present, and reasonably anticipated future projects.

The EIR is an informational document used in the local planning and decision-making process. It is not the purpose of the EIR to recommend either approval or denial of the project.

The County has encouraged public review through the notice of preparation (NOP) process (Appendix A) and will encourage further public review during circulation of the draft EIR. The purposes of review include sharing expertise, disclosing agency analyses, checking for accuracy, detecting omissions, discovering public concerns, and soliciting alternative proposals.

In reviewing draft EIRs, the focus should be placed on the sufficiency of the document in identifying and analyzing possible impacts on the environment and determining ways in which the significant effects of the project might be avoided or mitigated. Comments that are most helpful are those that identify other specific project impacts or suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate the significant environmental effects.

## **SCOPE OF THE ENVIRONMENTAL IMPACT REPORT**

The State CEQA Guidelines recommend preparing an initial study to evaluate a project's potential effect on the environment. After reviewing the proposed project, the Contra Costa County Planning Department staff prepared an initial study checklist (Appendix A). The staff determined that the following issues were of concern and should be addressed in the EIR:

- land use;
- public services and utilities;
- circulation;
- air quality;
- noise;
- soils and geology;
- hydrology and water quality;
- biological resources;
- cultural and historical resources;
- electromagnetic fields;
- housing, population, and employment; and
- aesthetics and visual quality.

An NOP of this EIR was distributed by the Contra Costa County Community Development Department in April 1991. Comments received on the NOP are on file at the Contra Costa County Community Development Department. The EIR discusses specific issues and concerns identified as possibly significant in the environmental checklist and in comments received on the NOP.

## **TERMINOLOGY USED IN THE ENVIRONMENTAL IMPACT REPORT**

The EIR uses the following terms to denote the significance of impacts:

- a "less-than-significant" impact would cause no substantial adverse change in the environment,
- a "significant" impact is one that would cause (or potentially cause) a substantial adverse change in the environment,
- a "significant and unavoidable" impact is a significant impact for which no mitigation is available to reduce the impact to a less-than-significant level (although mitigation may be available to substantially lessen the impact), and
- a "beneficial" impact is one that would cause a beneficial effect on the environment.

The EIR also recommends mitigation measures. Section 15370 of the State CEQA Guidelines defines mitigation as:

- avoiding the impact altogether by not taking a certain action or parts of an action;
- minimizing the impact by limiting the degree or magnitude of the action and its implementation;
- rectifying the impact by repairing, rehabilitating, or restoring the impact environment;
- reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
- compensating for the impact by replacing or providing substitute resources or environments.

## **AGENCIES THAT WILL USE THE ENVIRONMENTAL IMPACT REPORT**

Contra Costa County is the lead agency responsible for preparing the EIR for the project.

The following agencies may also use the EIR for any approvals or other actions relating to the project:

- California Department of Fish and Game (DFG);



- the San Francisco Bay Regional Water Quality Control District;
- U.S. Army Corps of Engineers (Corps);
- the Local Agency Formation Commissions of Alameda and Contra Costa Counties and any special districts or other agencies to which all, or a portion of, the Dougherty Valley planning area may annex;
- East Bay Regional Park District (EBRPD); and
- other Federal, State, or local agencies or special districts needed to implement the project.

## **ORGANIZATION OF THE ENVIRONMENTAL IMPACT REPORT**

The content and format of the EIR is designed to meet the requirements of CEQA and the State CEQA Guidelines. Table 1-1 provides a cross reference identifying the required contents of an EIR and their location in this EIR.

Chapter 3, "Project Description", contains a thorough description of the project, including its location, background, purpose and objectives, and a description of the planning area and project characteristics.

The remainder of this report is organized as follows:

Summary Text and Table;  
 Chapter 2. Summary;  
 Chapter 4. Land Use;  
 Chapter 5. Public Services and Utilities;  
 Chapter 6. Circulation;  
 Chapter 7. Air Quality;  
 Chapter 8. Noise;  
 Chapter 9. Soils and Geology;  
 Chapter 10. Hydrology and Water Quality;  
 Chapter 11. Biological Resources;  
 Chapter 12. Cultural Resources;  
 Chapter 13. Electromagnetic Fields;  
 Chapter 14. Housing, Population, and Employment;  
 Chapter 15. Aesthetics and Visual Quality;  
 Chapter 16. Alternatives to the Proposed Project;  
 Chapter 17. Other CEQA-Required Topics;  
 Chapter 18. Citations;  
 Chapter 19. Report Preparation; and  
 Technical Appendices.

Table 1-1. Cross Reference for CEQA Contents

CEQA Section	Topic	Location in this EIR
15122	Table of Contents or Index	Table of Contents, this table, and Introduction
15123	Summary	Chapter 2 - Summary
15124	Project Description	Chapter 3 - Project Description
	(d) Intended Uses of the EIR	Chapter 3 - Project Description
15125	Environmental Setting	Chapters 4-15 in "Setting" subsection for each resource
15126	Environmental Impact	
	(a) Significant Effects	Chapters 4-15 in "Project-Related Impacts" subsection for each resource
	(b) Significant Effects Which Cannot Be Avoided	Chapters 4-15 in "Project-Related Impacts" subsection for each resource
	(c) Mitigation Measures	Chapters 4-15 in "Impacts and Mitigation Measures Associated with the Specific Plan" subsection for each resource
	(d) Alternatives	Chapter 16 - Alternatives to the Proposed Project
	(e) Short-Term Uses/Long-Term Productivity	Chapter 17 - Other CEQA- Required Topics
	(f) Significant Irreversible Changes	Chapter 17 - Other CEQA- Required Topics
	(g) Growth-Inducing Impacts	Chapter 17 - Other CEQA- Required Topics
15128	Effects Not Significant	Noted in Appendix A - Initial Study and Notice of Preparation
15129	Organizations and Persons Consulted	Chapter 18 - Citations
15130	Cumulative Impacts	Summarized in Chapter 2 and discussed in Chapters 4-15
15131	Economic Social Effects	Discussed in Chapters 5 and 14 when related to environmental impacts
15162	Subsequent EIR	Chapter 1 - Introduction

The "Impacts" section of each issue area is organized to describe the criteria for determining the significance of an environmental impact and to identify key assumptions about the project that influenced the impact assessment. The standards for determining thresholds of significance for each issue area were either derived from Appendix G of the State CEQA Guidelines or based on standard professional practice. It is recognized that any agency acting on the project may have discretion to alter the conclusions of this EIR regarding the significance of particular impacts.

## **CONTRA COSTA COUNTY REVIEW AND APPROVAL PROCESS**

The following approvals would be required from the Contra Costa County Planning Agency, which is comprised of the zoning administrator, a planning commission, the Board of Supervisors, and staff (Cutler pers. comm.):

- certification of the EIR;
- amendments to the County general plan;
- approval of the specific plan;
- approval of development agreements;
- approval of rezoning;
- approval of preliminary and final development plans (including neighborhood plans);
- approval of subdivision maps;
- approval of site plans, building plans, and engineering plans;
- issuance of building permits;
- issuance of grading permits;
- issuance of occupancy permits; and
- collection of required impact fees.

## **OTHER REQUIRED APPROVALS**

The following approvals would also be required for the proposed project:

- Approval of a Streambed Alteration Agreement 1603 from DFG for construction or restoration activities within planning area creekbeds.



- A Federal Clean Water Act Section 404 permit for discharge of fill into waters of the United States (jurisdictional wetlands) from the Corps.
- Acceptance of the dedicated open space by the EBRPD.
- Any other approvals by Federal, State, or local agencies or special districts needed to implement the project.
- Modification of urban service district Spheres of Influence and annexation to urban service districts by Local Agency Formation Commission (LAFCO).

Each of these approvals are discussed in more detail in Chapter 3, "Project Description".

### **DOCUMENTS AVAILABLE FOR PUBLIC REVIEW**

In addition to the DVSP, the following documents are available for public review at the Contra Costa County Community Development Department. They were prepared in connection with the Dougherty Valley General and Specific Plans to aid in the analyses of the Dougherty Valley Specific Plan project and are hereby incorporated by reference into this EIR:

- Preliminary Geologic and Hydrogeological Review (ENGEO 1989).
- Gale Ranch, San Ramon, California, Geotechnical Reconnaissance Report (ENGEO 1988).
- Biological Surveys of the Dougherty Valley Specific Plan Area (EIP Associates 1990).
- Final Results of Surveys for San Joaquin Kit Fox and Burrowing Owl in the Dougherty Valley, Contra Costa County (Western Ecological Services Company 1991).
- Gumpert Ranch Draft EIR (Contra Costa County Planning Department 1983).
- Biological Survey of the Alamo Creek Study Area (Santina & Thompson 1981).
- Potential Impacts, Planning Considerations, and Mitigation Recommendations for San Joaquin Kit Fox and Burrowing Owl Resulting from Development in the Dougherty Valley, Contra Costa County (Western Ecological Services Company 1991).
- Biological and Cultural Resources in the Dougherty Valley Specific Plan Area (EIP Associates 1990).

- Gale Ranch Resource Survey (LSA Associates 1989).
- Gale Ranch, San Ramon, California Tiger Salamander Survey (LSA Associates 1991b).
- Windemere Streams and Wetland Areas within Corps Jurisdiction (LSA Associates 1990).
- Gale Ranch Streams and Wetland Areas within Corps Jurisdiction (LSA Associates 1991a).
- Aquatic Reptile and Amphibian Survey Windemere Property (LSA Associates 1990).
- Results of Supplemental Surveys for San Joaquin Kit Fox on the Dougherty Valley Project Site (Western Ecological Services Company 1991).

### **MITIGATION MONITORING PROGRAM**

In each section of this draft EIR, mitigation monitoring recommendations are included in each identified mitigation measure. These recommendations will enable the County to prepare a mitigation monitoring program on certification of the final EIR and will allow adequate review from the agencies that would be involved in the monitoring.

Where relevant, the mitigation measures include:

- a description of the mitigation measure, numbered by chapter;
- the funding source of the mitigation measure (if it requires direct expenses);
- the agency or individual that has the responsibility for implementing or performing the measure;
- the public agency that has the responsibility for monitoring the environment to ensure that the mitigation measure is effective; and
- the appropriate time during the planning, development, or life of the project at which the mitigation measure is to be initiated and completed.

### **SUBSEQUENT ENVIRONMENTAL REVIEW**

This EIR has been prepared as a project EIR intended to address all actions and entitlements necessary to approve and construct the project through its final buildout.

Under Section 15182 of the State CEQA Guidelines and Government Code Section 66457, no subsequent environmental review would be necessary for development of the project if it is in conformity with the specific plan. However, any changes to the project that may not be in conformity with the specific plan should be studied by Contra Costa County to determine if subsequent environmental review is necessary.

Where an EIR or Negative Declaration has been prepared, no additional EIR need be prepared unless:

- subsequent changes are proposed in the project which will require important revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental impacts not considered in a previous EIR or Negative Declaration on the project;
- substantial changes occur with respect to the circumstances under which the project is undertaken, such as a substantial deterioration in the air quality where the project will be located, which will require important revisions in the previous EIR or Negative Declaration due to the involvement of new significant environmental impacts not covered in a previous EIR or Negative Declaration; or
- new information of substantial importance to the project becomes available, and
  - the information was not known and could not have been known at the time the previous EIR was certified as complete or the Negative Declaration was adopted, and
  - The new information shows any of the following:
    - The project will have one or more significant effects not discussed previously in the EIR.
    - Significant effects previously examined will be substantially more severe than shown in the EIR;
    - Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project; or
    - Mitigation measures or alternatives which were not previously considered in the EIR would substantially lessen one or more significant effects on the environment. (State CEQA Guidelines, Section 15162).





## Chapter 2. Summary

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The proposed project is the development of the Dougherty Valley planning area based on the Dougherty Valley Draft Specific Plan (PBR 1992). The project includes a County general plan amendment, specific plan, rezone, preliminary and final development plans, subdivision maps, development agreements, and related entitlements. If approved, it would involve construction of up to 11,000 homes with supporting commercial, office, civic, and open space land uses.

The Dougherty Valley planning area is located on approximately 5,979 acres in an unincorporated portion of southcentral Contra Costa County east of the City of San Ramon. Contra Costa County is the lead agency.

The environmental consequences of the proposed project are summarized by topic in Table 2-1. This table identifies the anticipated environmental impacts associated with all phases of the project, their significance before mitigation, mitigation measures that are recommended to reduce or eliminate these impacts, and their significance after mitigation. Impacts are considered to be avoidable unless identified as unavoidable. This table is a condensed version of the impacts described and mitigation measures discussed in the EIR. The reader should refer directly to the EIR for full discussions of impacts and mitigation measures.

Alternatives to the project include the No-Project Alternative (which consists of leaving the planning area undeveloped), the Lower Density Alternative (which would result in a maximum of 5,500 dwelling units over the same 2,254 acre residential development area as the Project Alternative), the Moderate Density Alternative (which would result in a maximum of 9,500 dwelling units over the same 2,254 acre residential development area), the Concentrated Development Alternative (which would result in a maximum of 11,000 dwelling units on a smaller 1,840 residential acre area), and the Offsite Development Alternative (which would involve development of the project on the 7,400-acre Eastern Dublin planning area). The No-Project Alternative was determined to be the environmentally superior alternative, followed by the Concentrated Development Alternative.

Controversial issues associated with the proposed project and known to Contra Costa County include the project's impacts on the adjacent roadway network and the need for additional infrastructure; the provision of public services and facilities; its relationship to parallel planning efforts being conducted for the planning area by the City of San Ramon; its contribution to cumulative regional traffic, land use, biological resources, and open space impacts; and its growth-inducing impacts.

Issues that will need to be resolved include the circumstances surrounding the project's provision of public services and facilities, including assurances that such services and facilities will be provided in the manner described in the County general plan.



Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
<b>Chapter 4. Land Use</b>			
<b>Project-Related Impacts</b>			
Impact: Inconsistency with San Ramon General and Specific Plans	Less than significant	No mitigation is required	Less than significant
Impact: Conversion of Substantial Portions of County's Stock of Convertible Land to Urban Use	Significant	5.28: This measure to provide funding for management of open space is described in Chapter 5, "Public Services and Utilities"  11.2: This measure to reduce habitat fragmentation by purchasing or acquiring a conservation easement or other means of protection from development is described in Chapter 11, "Biological Resources"	Significant and unavoidable
Impact: Conversion of Approximately 6,000 Acres of Nonprime but Important Agricultural Land to Urban and Open Space Uses	Significant	No mitigation is available	Significant and unavoidable
Impact: Potential Internal Land Use Incompatibility of Residential Land Uses with Camp Parks	Significant	4.1: The project proponents should install security fencing around the northern perimeter of the Camp Parks portion of the planning area to meet the location and materials specifications of the Army. The fencing should be installed regardless of the outcome of the proposed land transfer. It should be of sufficient height and strength to exclude vehicles and climbers and should include notices prohibiting trespassing  8.5 or 8.6: These measures to locate new noise-sensitive land uses on the site so that noise from Army activities does not exceed County noise standards or to relocate noise-generating activities are described in Chapter 8, "Noise"	Less than significant

Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Impact: Potential Incompatibility with Adjacent Land Uses	Significant	<p>4.2: The project proponents should design neighborhoods in the vicinity of the incompatible land use relationship areas to reduce or eliminate potential conflicts through implementation of DVSP Land Use Element Policy LU-1. This policy describes the target density and unit transfer concepts and their use to create distinctive and sensitively integrated neighborhoods. This policy is reinforced by Housing Element Policy H-2 to ensure that homes are consistent with the character of surrounding areas. These policies should be implemented by preliminary development plans that affect the land use incompatibility areas identified in Figure 4-9 and described above</p> <p>The preliminary development plans should indicate how the identified land use incompatibilities will be addressed through use of density, intensity, setbacks, buffering, landscaping, fencing, grading, natural topographic features, building orientation, urban design solutions, and other approaches to sensitive site planning of the affected land use interface. The Community Development Department would be responsible for monitoring implementation of this mitigation measure at each more detailed stage of development from final development plans, tentative and final subdivision maps, to grading and building permits</p>	Significant and unavoidable
Potential Internal Incompatibility of Residential Land Uses with Existing Electric Transmission Lines	Significant	13.1 and 13.2: These measures to measure or model the electric and magnetic field strengths and advise affected residents of adverse potential health effects are described in Chapter 13, "Electromagnetic Fields"	Less than significant
Potential Insufficiency of Commercial Areas to Serve Residential Needs	Less than significant	No mitigation is required	Less than significant
<b>Cumulative Impacts</b>			
Cumulative Loss of Agricultural Land and Open Space	Significant	5.28 and 11.2: These measures are described below	Significant and unavoidable
Cumulative Pressure for Urban Growth beyond the Urban Limit Line	Less than significant	No mitigation is required	Less than significant

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
<b>Chapter 5. Public Services and Utilities</b>			
<b>Project-Related Impacts</b>			
Need for Collection and Treatment of 2.5-3.1 Millions Gallons per Day of Wastewater	Significant	<p>5.1: The project proponents and the County should apply to the Contra Costa County LAFCO for and obtain annexation of the planning area to Central San</p> <p>5.2: If obtaining wastewater service from Central San would be infeasible or if other reasons justify serving the project through another agency, the developers should apply to the Contra Costa County LAFCO and obtain annexation of the planning area to DSRSD for wastewater service</p> <p>5.3: The county should require the developers to provide the planning area's pro-rata share of all offsite wastewater service improvements necessary to serve the planning area. The Contra Costa Community Development Department and Central San (or DSRSD if obtaining wastewater service from Central San is infeasible) would be responsible for monitoring the success of this mitigation measure</p>	Less than significant
Need for Distribution and Treatment of Approximately 4.7 to 5.4 Millions Gallons per Day of Potable Water	Significant	<p>5.4: The project proponents and the County should apply to the Contra Costa County LAFCO for and obtain annexation of the planning area to EBMUD</p> <p>5.5: If obtaining water service from EBMUD would be infeasible, the developers should apply to the Contra Costa County LAFCO for and obtain annexation of the planning area to DSRSD for water service</p>	Significant and unavoidable



Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		<p>5.6: The County should require all landscaping to be irrigated with drip systems or water-efficient sprinkler systems</p> <p>5.7: The County should require the maximum use of recycled water for irrigation of open space areas and median strips. The County should also require the maximum use of recycled water for irrigation of private-lot landscaping, where feasible</p> <p>5.8: The county should require the developers to provide the planning area's pro-rata share of all offsite water service improvements necessary to serve the planning area. The Contra Costa Community Development Department and EBMUD (or DSRSD if obtaining water service from EBMUD is infeasible) would be responsible for monitoring the success of this mitigation measure</p>	
Need for Approximately 1,100 Gallons per Minute of Recycled Water	Significant	<p>5.9: The County should require the developers to provide the planning area's pro rata share of all offsite recycled water service improvements necessary to serve the planning area. Although the recycled water to be used in the planning area would originate at DSRSD's wastewater treatment plant, the agency responsible for providing water service to the planning area would also have to distribute recycled water because of State requirements</p> <p>5.10: The County should require that all open space, median strip, and private lot landscaping consist of drought-tolerant, low-water-use plant species. The Contra Costa Community Development Department would be responsible for monitoring the success of this mitigation measure</p>	Less than significant
Need for a Recycled Water Distribution System	Significant	<p>5.4 and 5.8: These measures are described above</p> <p>5.11: The County should require the project proponents to develop all onsite recycled water service improvements necessary to serve the planning area</p>	Less than significant
Need for Drainage Infrastructure	Significant	10.1-10.3: These mitigation measures are discussed in Chapter 10, "Hydrology and Water Quality"	Less than significant

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Generation of Approximately 25,000 Tons of Solid Waste Per Year	Significant	<p>5.12: The County should require development in the Dougherty Valley planning area to participate in the countywide curbside recycling program</p> <p>5.13: The County should require development in the Dougherty Valley planning area to participate in the County's composting program, when implemented</p>	Less than significant
Demand for Solid Waste Collection Service	Less than significant	No mitigation is required	Less than significant
Need for Approximately Two CHP Patrol Positions to Provide Traffic-Related Law Enforcement Service	Significant	No mitigation is available	Significant and unavoidable
Need for Approximately Five Sheriff's Deputies and Necessary Equipment	Significant	<p>5.14: The County should provide 4,500 square feet of substation space</p> <p>5.15: The County should provide a minimum of five sheriff's deputies and vehicles to provide non-traffic-related law enforcement service to the planning area</p> <p>5.16: The County should circulate development and open space management/ improvement plans to CCCSD for review and incorporate feasible suggestions before approval</p>	Less than significant
Need for Additional Fire Stations and Equipment	Significant	<p>5.17: The project proponents should dedicate one fire station site and reserve a second site in the planning area</p> <p>5.18: The developers should construct the fire stations and fund acquisition of equipment needed to provide adequate fire and emergency medical response to the planning area</p>	Less than significant
Need for Additional Firefighters	Less than significant	No mitigation is required	Less than significant
Increased Fire Hazards	Significant	<p>5.17 and 5.18: These measures are described above</p> <p>5.19: SRVFPD should review all plans for development of the planning area (e.g., preliminary, final, and neighborhood development plans and subdivision maps)</p>	Less than significant

Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		5.20: The East Bay Regional Parks District (EBRPD) or other responsible open space management agency should incorporate fire prevention measures approved by SRVFPD into its management of planning area open space areas (refer to mitigation measure 5.28 below)	
Need for Electric Service	Less than significant	No mitigation is required	Less than significant
Conflict with the PG&E Utility Line Easement	Less than significant	No mitigation is required	Less than significant
Need for Gas Service	Less than significant	No mitigation is required	Less than significant
Need for Telephone Service	Less than significant	No mitigation is required	Less than significant
Need for Cable Television Service	Less than significant	No mitigation is required	Less than significant
Need for Additional School Facilities to Accommodate 2,618 Elementary School, 1,241 Middle School, and 2,068 High School Students	Significant	5.21: The Contra Costa County Community Development Department should require the project proponents to dedicate land needed for the seven primary and secondary school facilities to the SRVUSD as a condition of approval of the preliminary development plans	Less than significant
		5.22: The Community Development Department should condition the approval of preliminary, final, and neighborhood development plans on the availability of adequate school facilities	
Need to Accommodate Approximately 1,329 Community College Students	Significant	5.23: The Community Development Department, CCCCD, San Ramon, and Danville should continue to work together to identify and develop an appropriate site for a community college in the San Ramon Valley	
		5.24: The project proponents should remove the proposed junior college land use on Camp Parks from the DVSP land use plan and text because this site would not be available in the near future	
Need for Childcare Facilities	Significant	5.25: The Community Development Department should require the project proponents to ensure that childcare facilities are provided to serve the planning area according to the County's childcare ordinance as a condition of approval of neighborhood development plans	Less than significant



Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Need for Managed Open Space	Significant	<p>5.26: The SRVUSD should plan a before- and after-school childcare facility on the existing middle school site within the planning area</p> <p>5.27: The County should ensure that the open space areas depicted in Figure 5-6 would be managed by EBRPD or another appropriate agency</p> <p>5.28: The County should ensure that one or more maintenance facilities for equipment storage to maintain the open space are located in the preliminary development plans and constructed</p>	Less than significant
Need for A Regional Trail Easement along the Eastern Boundary of the Planning Area	Significant	<p>5.29: The project proponents should either revise the alignment of the trail easement so that it is entirely within the planning area or delete the portions of the trail that extend east of the Windemere property to indicate that these portions of the trail easement would not be available unless other steps were taken to secure them</p> <p>5.30 EBRPD should acquire offsite easements from the landowners east of the Windemere property or the properties themselves to allow the regional trail east of Dougherty Road to be constructed as shown in Figure 5-7 or a temporary trail shall be located on planning area lands until the necessary easements can be acquired</p> <p>5.31: The County should establish a landscape and lighting district or Mello-Roos community facilities district to finance the maintenance of the regional trail east of Dougherty Road and its corresponding staging area</p>	Less than significant
Need for 43.5 Acres of Neighborhood Parkland and 72.5 Acres of Community Parkland	Significant	<p>5.32: 5.32: The County should require the project proponents to dedicate land for the parks identified on Figure 5-7 and build facilities according to the general plan standards in Table 5-3 and the County park dedication ordinance</p> <p>5.33: The County should form a Mello-Roos or landscape and lighting district to manage the parks and recreational facilities and resources in the planning area, excluding those areas managed by EBRPD or another public agency</p>	Less than significant

Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
<b>Chapter 6. Circulation</b>			
<b>Project-Related Impacts</b>			
Exceedance of Crow Canyon Road Planned Capacity under 2010 With-Project Conditions	Significant	6.1: The project proponents should construct or contribute a pro rata share toward improving Crow Canyon Road from a four-lane to a six-lane arterial between Dougherty Road and Camino Tassajara	Less than significant
Exceedance of Tassajara Road Planned Capacity under 2010 No-Project and 2010 With-Project Conditions	Significant	6.2: The project proponents should contribute a pro rata share toward improving Tassajara Road from a two-lane to a four-lane arterial between Dublin Boulevard and Fallon Road	Less than significant
LOS F Expected on I-680 between Bollinger Canyon Road and I-580 under 2010 With-Project Conditions	Significant	<p>6.3: The County, in cooperation with neighboring jurisdictions and the CMAs of Alameda and Contra Costa Counties, should initiate development of Deficiency Plans for I-680 and I-580 pursuant to State law which would consider the following actions:</p> <p>6.3a Implementation of enhanced transit service in the Tri-Valley region. Key elements to the regional transit effort include provision for a rail transit system along the I-680 and I-580 corridors with connections at the Pleasant Hill and future East Dublin BART stations, feeder bus service to key rail junctions, and integration of expanded local bus service across jurisdictional boundaries</p> <p>6.3b Implementation of alternative transportation corridors that will relieve excessive future travel demands on I-580 and I-680. Current alternatives include upgrading of Route 84 through Livermore to freeway standards and extending this freeway north of I-580 to the Route 4 freeway through Brentwood, as well as improved access to the south</p> <p>6.3c Adopt plans to enhance the capacity of freeway corridors. Possible TSM measures include ramp metering, high-occupancy vehicle lanes, and an integrated Traffic Operations System (TOS) currently considered by Caltrans</p>	Significant and unavoidable

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		<p>6.3d Adoption of regional land use plans that address the jobs/housing imbalance of existing General Plans and that seek to lessen the demand for automobile travel into, out of, and through the Tri-Valley transportation system</p> <p>6.3e The County shall require the developer to participate in a regional transportation mitigation program as determined through Measure C (1988). The amount of any regional transportation fee or assessment shall be calculated by using the rate in effect at the time of issuance of a building permit or certificate of occupancy for this project, or as otherwise determined by the agency with legal authority to set such fees</p>	
LOS F Expected on I-580 between I-680 and Fallon Road under 2010 With-Project Conditions	Significant	6.3: This measure is described above	Significant and unavoidable
LOS F Expected on I-680 between Bollinger Canyon Road and I-580 under 2010 With-Project Conditions	Significant	6.3: This measure is described above	Significant and unavoidable
LOS F Expected on I-580 between I-680 and Fallon Road under 2010 With-Project Conditions	Significant	6.3: This measure is described above	Significant and unavoidable
<b>Cumulative Impacts</b>			
LOS F Expected on I-680 between Bollinger Canyon Road and I-580 under Cumulative No-Project Conditions	Significant	6.3: This measure is described above	Significant and unavoidable
LOS F Expected on I-580 between Hacienda Drive and Fallon Road under Cumulative No-Project Conditions	Significant	6.3: This measure is described above	Significant and unavoidable
LOS F Expected on I-680 between Bollinger Canyon Road and I-580 under Cumulative With-Project Conditions	Significant	6.3: This measure is described above	Significant and unavoidable
LOS F Expected on I-580 between Hacienda Drive and Fallon Road under Cumulative With-Project Conditions	Significant	6.3: This measure is described above	Significant and unavoidable



Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Unacceptable Level of Service Expected at Five Intersections under 2010 No-Project Conditions	Significant	6.4: The County, in conjunction with neighboring jurisdictions, should require all development contributing to 2010 No-Project traffic conditions to contribute their pro rata shares toward the following roadway improvements (Table 6-14). Calculation of pro rata shares shall include an assessment of the benefits accrued to the project proponents.	Less than significant
Blackhawk Road/Camino Tassajara			
I-680 northbound off-ramp/Bollinger Canyon Road			
Alcosta Boulevard/Bollinger Canyon Road		6.4a Blackhawk Road/Camino Tassajara: Restripe Camino Tassajara eastbound to provide one left-turn lane, two through lanes, and one right-turn lane; restripe northbound right-turn lane to free-flow right-turn lane;	
I-680 northbound off-ramp/Alcosta Boulevard		6.4b I-680 northbound off-ramp/Bollinger Canyon Road: widen to add fourth westbound through lane;	
Santa Rita Road/I-580 eastbound offramp		6.4c Alcosta Boulevard/Bollinger Canyon Road: Widen to add one free-flow right-turn lane to Alcosta Boulevard southbound, modify traffic signal control;	
		6.4d I-680 northbound off-ramp/Alcosta Boulevard: Widen and restripe to provide second westbound right turn lane, widen northbound on-ramp to accept two right-turn lanes; and	
		6.4e Santa Rita Road/I-580 eastbound offramp: Add one through lane to Santa Rita Road southbound; widen eastbound off-ramp to provide two left-turn one shared left-turn plus through lane, and one free right-turn lane	

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Drop in LOS from Acceptable to Unacceptable Conditions at Three Intersections under 2010 With- Project Conditions	Significant	6.5: The project proponents should contribute a pro rata fair share to fund the following roadway improvements (Table 6-15):	Less than significant
Camino Tassajara/Diablo Road		6.5a Camino Tassajara/Diablo Road: Add a second left-turn lane northbound, widen for a second westbound through lane;	
I-680 northbound off-ramp/Sycamore Valley Road		6.5b I-680 northbound off-ramp/Sycamore Valley Road: Add one lane for one left-turn lane, two through lanes, and one right-turn lane to the I-680 off-ramp	
Sycamore Valley Road/Camino Tassajara		6.5c Sycamore Valley Road/Camino Tassajara: Widen for a second left-turn lane on southbound Camino Tassajara	
		6.6: The project proponents should implement the following measures to reduce the demand for automobile travel to and from the planning area:	
		6.6a provide transit service to Dougherty Valley to reduce the offsite trip generation; at a minimum, regularly scheduled service should be provided to major activity centers, such as Bishop Ranch, Blackhawk Plaza, Hacienda Business Park, Stoneridge Mall, the East Dublin BART station, and coordinated with existing service provided by CCTA and Wheels;	
		6.6b provide park-and-ride lots near the village center to encourage ridesharing and use of transit alternatives;	
		6.6c provide commercial and service facilities that will serve the Dougherty Valley and Tassajara Valley communities	
		6.7: provide planned roadway improvements according to the DVSP to serve phased growth of the area	
		6.8: install traffic signals at all study intersections onsite	

Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Further Degradation of an Unacceptable LOS at Two Intersections under 2010 With-Project Conditions	Significant	6.6, 6.7, and 6.8: These measures are described above	Less than significant
Blackhawk Road/Camino Tassajara			
Alcosta Boulevard/Bollinger Canyon Road			
Drop in LOS from Acceptable to Unacceptable Conditions at Five Intersections under Cumulative With-Project Conditions	Significant	6.10: The project proponents should contribute a pro rata fair share to fund implementation of the following roadway improvements (Table 6-16) in addition to those previously specified under cumulative no-project conditions:	Less than significant
Camino Tassajara/Diablo Road			
I-680 northbound off-ramp/Sycamore Valley Road		6.10a Camino Tassajara/Diablo Road: No additional mitigation measures than those provided in Table 6-15	
Dougherty Road/Crow Canyon Road			
Dougherty Road/Dublin Boulevard		6.10b I-680 northbound off-ramp/Sycamore Valley Road: Widen to provide an additional westbound right-turn lane onto northbound on-ramp. Widen and restripe on-ramp to receive additional turn lane	
Hopyard Road/I-580 eastbound off-ramp		6.10c Dougherty Road/Crow Canyon Road: Restripe Dougherty Road's northbound right-turn lane to provide a free right-turn lane	
Further Degradation of an Unacceptable LOS at Two Intersections under Cumulative With-Project Conditions	Significant	6.11: The project proponents should fund their share of the following intersection improvements, in addition to those previously specified under cumulative no-project conditions. The project proponents' share would be that amount required to return the intersection to its LOS under no-project conditions	Less than significant
Blackhawk Road/Camino Tassajara			
Alcosta Boulevard/Bollinger Canyon Road		<ul style="list-style-type: none"> <li>- Blackhawk Road/Camino Tassajara: Add a third left-turn lane to southbound Crow Canyon Road and</li> <li>- Alcosta Boulevard/Bollinger Canyon Road: No additional mitigation measures other than those provided in Table 6-15</li> </ul>	



Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
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### Chapter 7. Air Quality

#### Projected-Related Impacts

Increased Emission of PM <sub>10</sub> Dust	Significant	<p>7.1: The project proponents should use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site and increase watering frequency whenever winds exceed 15 mph</p> <p>7.2: The project proponents should spray all dirt stock-pile areas daily as needed</p> <p>7.3: The project proponents should implement permanent dust control measures identified in the approved project revegetation and landscape plans as soon as possible following completion of any soil-disturbing activities</p> <p>7.4: Exposed ground areas that are planned to be reworked more than 1 month after initial grading should be sown with a fast-germinating native grass seed and watered until vegetation is established</p> <p>7.5: The project proponents should stabilize all disturbed soil areas not subject to revegetation using approved chemical soil binders, jute netting, or other methods approved in advance by the BAAQMD</p> <p>7.6: Construction vehicle speeds should not exceed 25 mph on any unpaved surface at the construction site</p>	Significant and unavoidable
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Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Generation of Construction-Related Ozone Precursor Emissions	Significant	<p>7.7: The project proponents should electrify equipment where practical</p> <p>7.8: The project proponents should maintain and operate equipment according to manufacturer's specifications, except as required by mitigation measure 7.9</p> <p>7.9: The project proponents should implement engine timing retard (4 degrees) for diesel-powered equipment or as recommended by manufacturer</p> <p>7.10: The project proponents should install catalytic converters on gasoline-powered equipment where required by law</p> <p>7.11: The project proponents should substitute gasoline-powered for diesel-powered equipment where feasible</p>	Significant and unavoidable
Violation of Carbon Monoxide Emission Standards	Significant	<p>7.12: The project proponents should implement the intersection measures detailed in Chapter 6, "Circulation"</p> <p>Implementing mitigation measure 7.12 would result in the proposed project (with mitigation) violating the CO significance criteria at three of the 96 receptors as compared to six of 96 receptors for the proposed project without mitigation. These three receptors are located at two intersections: Dougherty Road/I-580 and Crow Canyon Road/Dougherty Road</p> <p>7.13: The project proponents should implement the transportation control measures contained in the Bay Area Air Quality Management District's Clean Air Plan</p> <p>7.14: The County should modify signal timing to improve arterial traffic movement</p> <p>7.15: The project proponents should provide bus feeder service to BART and other transportation infrastructure</p>	Significant and unavoidable
Increase of Ozone Precursor Emissions	Significant	7.12 through 7.15: These measures are described above	Significant and unavoidable

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
<b>Cumulative Impacts</b>			
Increase of Carbon Monoxide Emissions	Significant	7.12 through 7.15: These measures are described above	Significant and unavoidable
Increase of Ozone Precursor Emissions	Significant	7.12 through 7.15: These measures are described above  7.16: The project proponents should revise the DVSP to include signal timing as measures to improve traffic flow  7.17: The project proponents should revise the DVSP to encourage bus feeder service to BART to be provided by a local bus provider	Significant and unavoidable

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
<b>Chapter 8. Noise</b>			
<b>Project-Related Impacts</b>			
Exposure of Onsite and Offsite Land Uses to Construction Noise	Significant	<p>8.1: To reduce the exposure of onsite and offsite land uses to construction noise, the project proponents should employ noise-reducing construction practices by incorporating the following measures into contract specifications before the County's issuance of grading permits:</p> <ul style="list-style-type: none"> <li>- All equipment should have sound-control devices no less effective than those provided on the original equipment. No equipment should have an unmuffled exhaust</li> <li>- As specified in the Contra Costa County General Plan noise element, construction activities should be concentrated during hours that are not noise-sensitive for adjacent land uses and should be commissioned to occur during normal work hours to provide relative quiet during the more sensitive evening and early morning hours. The County shall set the hours of heavy equipment operation when considering the tentative map approval</li> <li>- As directed by the Contra Costa County Community Development Department, the contractor should implement appropriate additional noise mitigation measures, including, but not limited to, changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activities, notifying adjacent residents in advance of construction work, or installing acoustic barriers around stationary construction noise sources</li> </ul>	Less than significant



Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Exposure of Residents and Other Noise-Sensitive Land Uses in the Planning Area to Traffic Noise Levels in Excess of Contra Costa County Standards	Significant	<p>8.2: To reduce noise to acceptable levels, the project proponents should locate new residences and other noise-sensitive land uses outside the 60-dB-<math>L_{dn}</math> contour lines caused by traffic and transit sources</p> <p>The project proponents should employ setbacks to locate noise-sensitive land uses, such as residences, schools, and health care facilities, outside the 60-dB-<math>L_{dn}</math> contour lines caused by traffic on roads or light rail trains on tracks directly adjacent to these land uses. Distances to 60-dB-<math>L_{dn}</math> contour lines for roads in the planning area are given in Tables 8-6 and 8-8</p> <p>or</p> <p>8.3: To reduce noise to acceptable levels, the project proponents should provide sound walls, berms, or other noise control measures between the roads and noise-sensitive land uses that must be located within the 60-dB-<math>L_{dn}</math> contour lines for reasons beyond the project proponents' control</p>	Less than significant

Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Exposure of Residents in the Planning Area to Noise from Training Activities at Camp Parks	Significant	<p>8.5: To reduce noise to acceptable levels, the project proponents should locate new noise-sensitive land uses on the project site so that noise from Army activities does not exceed County noise standards</p> <p>As a condition of approval of tentative subdivision maps, the project proponents should provide a detailed acoustical analysis describing how the interior noise level standard will be achieved for each residential area, subject to noise within the 60-dB contour line. This detailed acoustical analysis should be reviewed and approved by the Community Development Department before approval of final subdivision maps</p> <p>or</p> <p>8.6: To reduce noise to acceptable levels, the Army should relocate noise-generating activities so that noise from these activities does not exceed County noise standards at new noise-sensitive land uses in the planning area. This would be done at the project proponents' expense and only with the approval of the Army. As specified in policy 11-10 of the Contra Costa County noise element, this analysis should be conducted for all noise-sensitive land uses located within 6,000 feet of Camp Parks</p> <p>As a condition of approval of tentative subdivision maps, the project proponents should provide a detailed acoustical analysis describing how the interior noise level standard will be achieved for each residential area, subject to noise within the 60-dB contour line. This detailed acoustical analysis should be reviewed and approved by the Community Development Department before approval of final subdivision maps</p>	Less than significant
Potential Exposure of Residents in the Planning Area to Noise from Light Rail Train Passages	Significant	8.2 or 8.3 and 8.4: These mitigation measures are described above	Less than significant

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Exposure of Residents along Old Ranch Road to a Substantial Increase In Noise	Significant	<p>8.8: To reduce noise to acceptable levels, the project proponents should provide sound walls along Old Ranch Road adjacent to existing residences</p> <p>To reduce the increase in noise to a less-than-significant level, the increase in noise would need to be reduced by 2 to 3 dB. Construction of a standard sound wall would be expected to provide this level of noise reduction. The project proponents should provide sound walls along Old Ranch Road adjacent to existing residences, subject to the concurrence of the City of San Ramon</p> <p>8.9: To reduce noise to acceptable levels, the project proponents should upgrade the acoustical insulation of existing homes that abut Old Ranch Road where sound walls will not be effective in reducing exterior noise</p>	Less than significant
Exposure of Residents along Dougherty Road near Old Ranch Road to Excessive Noise Levels	Significant	<p>8.10: To reduce noise to acceptable levels, the project proponents should provide sound walls or berms along Dougherty Road adjacent to current residences</p> <p>To reduce the noise impact that would result from implementation of the project to a less-than-significant level, the increase in noise would need to be reduced by 2 to 3 dB. Construction of a standard 6- to 8-foot sound wall or berm would be expected to provide this reduction. The project proponents should provide sound walls along Dougherty Road adjacent to current residences</p> <p>or</p> <p>8.11: The project proponents should upgrade the acoustical insulation of existing homes along Dougherty Road where sound walls or berms will not be effective in reducing exterior noise</p> <p>8.12: New homes being built in the City of San Ramon should be required to have adequate acoustical insulation so that additional homes will not need to be retrofitted</p>	Less than significant

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Exposure of New Residents to Noise from Recreational and Cultural Facilities	Significant	8.13: To reduce the potential for complaints from neighbors, the project proponents should incorporate noise control features, such as setbacks and barriers, into the design of recreational and cultural facilities that have the potential to generate noise	Less than significant
<b>Cumulative Impacts</b>			
Exposure of Existing and Planned Noise-Sensitive Locations to Noise Levels in Excess of County Noise Standards	Significant	No mitigation is available	Significant and unavoidable
<b>Chapter 9. Soils and Geology</b>			
<b>Project-Related Impacts</b>			
Substantial Change in Topography from Grading Operations	Significant	9.1: The project proponents should prepare a detailed grading plan that specifies areas to be graded and shows earthwork balances to be included in the Preliminary Development Plan. These design-level studies should be based on geotechnical criteria provided by the geotechnical engineer for the project	Less than significant



Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Potential for Structural Damage and Injury to People from Development in Areas Susceptible to Landsliding and Slope Failure	Significant	<p>9.2: The project proponents should avoid construction on large landslide and colluvial areas, as described in the geotechnical reconnaissance reports prepared for the Shapell and Windemere properties (ENGEO 1988, 1989)</p> <p>or</p> <p>9.3: The project proponents should stabilize the landslide and colluvial deposits that present a hazard to development using corrective grading techniques aimed at achieving long-term stability. This stabilization process would:</p> <ul style="list-style-type: none"> <li>- provide substantial drained and compacted buttress fills with flat benches to intercept potential debris flow from higher elevations and</li> <li>- use mass grading techniques to lower and flatten existing steep slopes that present a hazard to areas planned for development.</li> </ul> <p>9.4: The project proponents should form or participate in any existing Geologic Hazard Abatement Districts to establish funding mechanisms for any remedial work required after a project is constructed for landslides or other land disturbances in graded areas</p>	Less than significant
Potential for Injury to People in Open Space and Park Areas Susceptible to Landsliding and Slope Instability	Significant	9.5: The project proponents should prohibit access to identified debris flow areas in designated open space and park areas	Less than significant
Minor Potential for Structural Damage and Injury from Development in Seismic Risk Zone III	Less than significant	No mitigation is required	Less than significant
Potential for Structural Damage and Injury to People from Development on Materials Susceptible to Liquefaction	Significant	9.6: The project proponents should prepare a detailed geotechnical report, which includes borings, to evaluate the hazard of liquefaction. If liquefiable soils are present, the report should identify measures to prevent liquefaction and grading plans should be developed that implement those recommendations	Less than significant

Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Potential for Increased Short-Term and Long-Term Soil Erosion Rates from Development on Soils with Moderate to High Erosion Hazards	Significant	9.7: The project proponents should prepare an erosion control and rehabilitation plan (ECRP) to control short-term and long-term soil erosion and sedimentation in nearby streams and rivers	Less than significant
Potential for Structural Damage from Development on Soils with High Shrink-Swell Potential	Significant	<p>9.8: The project proponents should use special design criteria for structures built on soils with high shrink-swell potential. The design could include features such as the following:</p> <ul style="list-style-type: none"> <li>- extending building foundations to below the zone of moisture fluctuation with deep footings or drilled piers,</li> <li>- replacing the expansive top soil with a layer of select fill material with low expansion potential, or</li> <li>- laying rigid mat or slab foundation designed to resist the fluctuations associated with the soil expansion</li> </ul>	Less than significant
Grading on Hillsides with Slopes of 26% and Greater	Significant	9.1: This measure is described above	Less than significant
Development of Windemere Parkway Extension on Potentially Unstable Land East of the Planning Area	Significant	<p>9.9 The project proponents should design the Windemere Parkway extension based on a grading plan and engineering geotechnical study prepared as part of grading plans for the Windemere property under mitigation measure 9.1. The Windemere Parkway extension grading plan should be reviewed and approved by the County geologist or an engineering geologist acting on behalf of the County prior to the County's approval of the Preliminary Development Plan for the Windemere property</p> <p>9.2-9.4: These mitigation measures are described above</p>	Less than significant

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Development of Water, Wastewater, and Recycled Water Infrastructure on Potentially Geologically Unstable Land Within and adjacent to the Planning Area	Significant	<p>9.10 The project proponents should design all potable water, wastewater, and recycled water infrastructure to be located on undeveloped open space based on a grading plan and engineering geotechnical study prepared as part of grading plans under mitigation measure 9.1. The grading plan should be reviewed and approved by the County geologist or an engineering geologist acting on behalf of the County prior to the County's approval of the Preliminary Development Plan for the affected property</p> <p>9.2-9.4: These mitigation measures are describe above</p> <p>15.31: This mitigation measure is described in Chapter 15, "Visual Quality"</p>	Less than significant
<b>Chapter 10. Hydrology and Water Quality</b>			
<b>Project-Related Impacts</b>			
Increased Runoff from the Planning Area	Significant	<p>10.1: The project proponents should construct onsite detention basins to reduce postproject peak floodflows to predicted preproject levels and promote infiltration. These methods could include one or a combination of onsite storage facilities</p> <p>10.2: The project proponents should establish a storm drain infrastructure system throughout the proposed project that safely conveys runoff from individual homes, lots, and streets to the major creeks via a system of culverts, gutters, and swales. This local flood protection should be provided for at least the 10-year local flood event</p>	Less than significant

Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Risk of Flood Damage from Development in the 100-Year Floodplain	Significant	10.3: The project proponents should increase the capacity of existing onsite major drainages. As a result of the degraded condition of the creeks in the planning area, the DVSP proposes a creek restoration program as stated under policy OSC-9, which includes the regrading of the creeks and channel modifications that would form terraces and accommodate major flood events and Policy OSC-10 which requires that regraded creeks be stabilized using a combination of vegetation and environmentally sensitive stabilization techniques. The proposed creek corridors will vary in width and configuration. Major creek corridors would average 300 feet in width, with fluctuations based on individual design and engineering considerations in order to provide adequate space for the full range of biologic, hydrologic, and recreational improvements. Smaller creeks and drainages are to be maintained within a 50-foot corridor. These channels should be sized to accommodate the anticipated 100-year floodflows	Less than significant
Increased Erosion during Construction	Significant	9.4: This measure is described above	Less than significant
Increased Water Quality Degradation Because of Urban Runoff	Significant	10.4: The project proponents should construct onsite retention or detention facilities or install silt or grease traps in the storm drain system for the proposed project drainage	Less than significant
Hazardous Material Spills during Construction	Significant	10.5: The project proponents should ensure that their plan includes a substance control program for construction activities to reduce potentially significant impacts on water quality caused by a chemical spill. This program should require safe collection and disposal of hazardous substances generated during construction activities and should include an emergency response program to ensure quick and safe cleanup of accidental spills. The County should require a hazardous substance control and emergency response program as a condition of preliminary plan approval	Less than significant
<b>Cumulative Impacts</b>			
Increased Water Quality Degradation	Significant	10.4: This measure is described above	Less than significant
Increased Runoff and Flooding Downstream of the Planning Area	Significant	10.1: This measure is described above	Less than significant



Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Increased Channel Erosion Due to Construction of Bridge Crossings	Significant	10.6: Size bridges such that they do not constrict flows, particularly bankfull floodflows. Design of bridges should be performed by a registered civil engineer	Less than significant
<b>Chapter 11. Biological Resources</b>			
Loss, Degradation, or Fragmentation of 3,911 Acres of Annual Grasslands	Significant	11.1: The project proponents should manage existing grasslands in the proposed open space areas to reduce overall grazing intensity at the site by meeting or exceeding minimum management recommendations for leaving residual dry matter (RDM), as described for annual grasslands in the U.S Forest Service's Range Environmental Analysis Handbook. The grasslands appear to have been grazed at levels exceeding the recommended RDM standards. A qualified range ecologist and a wildlife biologist should prepare specific management recommendations for the open space areas. These recommendations should include permissible animal unit months and vegetative cover requirements to minimize erosion and ground-water impacts. These recommendations should be submitted to and approved by the County Community Development Department before approval of final subdivision maps adjacent to the areas to be grazed. A net reduction in grazing intensity is expected to have a beneficial impact on botanical and wildlife resources by increasing overall vegetative cover and improving plant species diversity, but this does not fully compensate for the loss of grassland habitat, nor does it compensate for fragmentation and isolation of remaining grassland habitat	Less than significant

Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		<p>11.2: The project proponents should reduce habitat fragmentation, compensate for the loss of grassland habitat, and maintain a large, contiguous tract of foraging and breeding habitat by purchasing or acquiring a conservation easement, or otherwise protecting from development, the property or properties adjacent to and east of the planning area (west of the existing homes along Tassajara Road). This conservation area should be managed similarly to the open space areas in the planning area, except that intensive public recreation should be prohibited from the conservation area. Conservation easements should be purchased prior to approval of final subdivision maps for the site. The project proponents should provide an endowment for long-term management of the conservation area. The conservation area will ensure that future habitat fragmentation will not occur along the eastern side of the planning area and that adequate wildlife corridors will remain along the east side of the planning area, thus maintaining a large contiguous area of foraging habitat for wildlife</p>	
Elimination or Degradation of Valley Oak Woodland, Valley Oak Riparian Woodland, and Individual Oak Trees	Significant	<p>11.3: The project proponents should avoid adversely affecting oak trees and riparian vegetation in open space and parks and recreation use areas to the fullest extent possible during final project planning by rerouting proposed trails and pathways and relocating proposed facilities outside woodland areas</p> <p>11.4: If elimination of valley oaks is unavoidable, the project proponents should replace lost trees by planting ten seedlings for each tree eliminated (Dougherty Valley Specific Plan Policy OSC-12)</p>	Less than significant
Elimination or Degradation of 2.6 Acres of Willow Riparian Forest	Significant	11.3 and 11.4: These measures are described above	Less than significant

Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Elimination or Degradation of 0.4 Acre of Freshwater Marsh	Significant	<p>11.3 and 11.4: These measures are described above</p> <p>11.5: The mosquito abatement district should be included in wetland and riparian habitat restoration and enhancement planning. Recommendations from the abatement district will be used in wetland and riparian habitat design that will minimize the creation of mosquito breeding habitat and reduce the need for mosquito abatement activities</p> <p>11.6: The local mosquito abatement district should minimize the disturbance caused by mosquito abatement activities in wetlands during periods of active wildlife breeding activities (March 15-July 15). If mosquito abatement is required during the breeding season, the mosquito abatement district should conduct a wildlife survey to determine if sensitive wildlife species are present that could be disturbed (e.g., tricolored blackbirds and other colony-nesting species). If sensitive wildlife species are present and mosquito abatement is necessary, the mosquito abatement district should contact DFG to determine the appropriate procedures</p> <p>11.7: The project proponents should all fence freshwater marsh habitats and at mitigation areas to restrict human and domestic animal access. Fencing should consist of materials that allow movement of wildlife (i.e., 3-inch mesh fencing) and should be placed 150 feet from the outer edge of the wetland. Fencing should be completed before a grading permit is issued. The Community Development Department should ensure fencing is completed before grading begins</p> <p>11.8: The project proponents should prevent dredge or fill activities in jurisdictional wetland areas or compensate for the loss of unavoidable onsite freshwater marsh in consultation with DFG, USFWS, and the Corps as a condition of a Section 404 permit</p>	Less than significant
Elimination of Approximately 2 Acres of Alkali Meadow	Significant	11.3, 11.4, and 11.8: These measures are described above	Less than significant
Elimination or Degradation of 2.1 Acres of Seeps	Significant	11.3 through 11.8: These measures are described above.	Less than significant

Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Loss or Degradation of Stock Ponds	Significant	11.3 through 11.8: These measures are described above	Less than significant
Loss or Degradation of Perennial and Seasonal Creeks	Significant	11.3 and 11.8: These measures are described above	Less than significant
Potential Loss of San Joaquin Spearscale and Brittle-scale Habitat	Significant	11.9: Prior to construction of any trail or other improvements in the alkali meadow area, a survey should be undertaken to determine whether the San Joaquin spearscale and brittle-scale are likely to be affected. If either species is found, they should be protected by redesign or abandonment of the proposed improvements (Sproal pers. comm.)	Less than significant
Pollution of Coyote Creek by Fertilizers and Chemicals from the Golf Course	Significant	11.10: The project proponents should design the golf course and drainage systems by minimizing surface runoff into Coyote Creek. The project proponents will submit a golf course design plan with the preliminary development plan. The Community Development Department will ensure that the design of the golf course and drainage systems minimizes flow into the creek	Significant and unavoidable
Loss of Special-Status Aquatic Species and Their Habitats	Significant	11.1, 11.2, 11.3, 11.5, 11.7, and 11.8. These mitigation measures are described above	Significant and unavoidable
Loss of Special-Status Raptors and Their Habitats	Significant	11.11: The following measures should be implemented to determine if the owls nest in the planning area, and if so, to determine what measures need to be undertaken (if any) to protect the owls from construction activities and mitigate for the loss of breeding and foraging habitat. If the owls are found to nest in the planning area, nesting habitat may be created in the open space area or off the planning area to provide suitably protected burrows (possibly the land adjacent to and east of the planning area. The owls may move to this area on their own or they may be relocated if necessary	Significant and unavoidable
Potential Direct and Indirect Adverse Effects on Nesting Raptors	Significant	11.12: The project proponents should commission preconstruction field surveys for active raptor nests. If active nests are found, the project proponents should maintain a buffer zone (possibly 300 feet in radius) around raptor nests while they are occupied or postpone construction activities until after the raptor breeding season (July 15-January 15)	Less than significant



Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Loss of Tricolored Blackbird Nesting and Foraging Habitat and Long-Term Disturbance to Tricolored Blackbird Nesting Habitat	Significant	11.13: The project proponents should be required to develop and implement a detailed mitigation plan to compensate for the loss of the tricolored blackbird nesting and foraging habitat	Less than significant
Potential Adverse Effects on San Joaquin Kit Fox Habitat	Significant	11.14: The project proponents and the open space land managers will prohibit the use of rodenticides in open space areas  11.15: The project proponents should avoid construction activities in the northern tip of the open space area identified as occupied kit fox habitat, as shown in Figure 11-2	Less than significant
Loss of 3,911 Acres of American Badger Breeding and Foraging Habitat	Significant	11.16: The project proponents should commission preconstruction surveys for badgers to determine the extent to which each construction phase could affect the species. If the badger is found, the project proponents should implement mitigation measures 11.1 and 11.2 (described above)	Less than significant
Adverse Effects to Seeps, Riparian Habitat, Annual Grasslands, Western Pond Turtle, and California Red-Legged Frog from Construction of Windemere Parkway Extension to Camino Tassajara Road	Significant	11.17: If the bridge alternative is selected, the project proponents should construct the bridge structure with no disturbance of the creek area within the line of ordinary high water and associated riparian vegetation, unless a bridge footing is required within this zone  11.18: If the bridge alternative is selected and the project proponents are required to construct the bridge footing within the ordinary high-water line, specific measures to maintain water quality and minimize disturbance of the streambed and associated riparian vegetation will be implemented (Sproal pers. comm.)  11.19: The project proponents should prevent fill material and sediments from entering the stream by placing silt fences, straw bales, and other erosion control techniques around the streamside perimeter of the construction sites. The project proponent would clean up and remove all loose soil and construction material from these areas on completion of construction	Less than significant

Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		<p>11.20: The project proponents should replace trees removed by construction as specified in measure 11.4. In addition, the project proponents should enhance Tassajara Creek for a distance of 100 feet upstream and downstream of the centerline of the bridge by planting additional riparian trees. The planting should include valley oak, arroyo willow, and red willow</p>	
		<p>11.21: If the culvert alternative is selected, the project proponents should construct culverts at a minimum of 10 feet in height, with a natural bottom to allow unimpeded animal access through the culvert</p>	
		<p>11.22: If the culvert alternative is selected, the project proponents should minimize creek fill by designing the crossing to use retaining walls</p>	
		<p>11.23: The project proponents should replace the wetland area lost to road construction (seeps and any stream channel) by creating replacement wetland habitat of equal value (in quality and quantity) in Hidden Valley</p>	
		<p>11.24: The project proponents should modify three seeps in Hidden Valley to flow into pools excavated at their bases and plant riparian vegetation, including elderberry, around their perimeters to provide red-legged frog habitat. The project proponents should also transplant red-legged frog tadpoles to these ponds for a period of 3 years and monitor these pools for 2 additional years to determine whether the transplants are successful in establishing a breeding population. If the transplant does not succeed, tadpoles should be transplanted for 2 additional years and monitoring should be continued</p>	

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		<p>11.25: The project proponents should revegetate all cut and fill slopes with a seed mix composed of annual grasses and native forbs, such as lupine and California poppy</p> <p>11.26: The project proponents should provide undercrossings at drainage culvert undercrossings to allow wildlife movement beneath, rather than across the road. Undercrossing design would be subject to DFG and USFWS approval</p> <p>11.27: The project proponent should install fencing along the roadway extension that would serve to direct wildlife through the road undercrossings. Fence design would be subject to DFG and USFWS approval</p>	
<b>Cumulative Impacts</b>			
Cumulative Loss and Fragmentation of Annual Grassland Habitat for Wildlife and Special-Status Wildlife Species	Significant	11.1 and 11.2: These measures are described above	Significant and unavoidable
Minor Potential for Cumulative Loss of San Joaquin Kit Fox Habitat	Less than significant	No mitigation is required	Less than significant

## Chapter 12. Cultural Resources

### Project-Related Impacts

Damage to or Destruction of the Historic Louis Banke House (CA-Cco-440H)	Significant	<p>12.1: To avoid damage or destruction of the Louis Banke house, the specific plan should specifically identify it for preservation and restoration as an integral component of the park in which it is located. Prior to actual restoration of the building, the property should be further evaluated by an architectural historian to document its specific historic values and context, develop concepts for its preservation, and prepare site record forms that meet current professional standards for architectural properties</p>	Less than significant
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Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Damage to or Destruction of Historic/Archeological Site (CA-723))	Significant	12.2: To avoid damage to or destruction of the historic site, the specific plan should specifically identify site CA-723 as an integral component of the park in which it is located. The specific decision whether to preserve this building or allow it to be recorded and torn down can be deferred to the future planning by the homeowners association that will operate the project's parks. As part of that subsequent planning process, the property should be further evaluated by an architectural historian to document its specific historic values and context, develop concepts for its preservation, and prepare site record forms that meet current professional standards for architectural properties	Less than significant
Damage to or Destruction of Several Important Prehistoric and Historic Archeological Sites Located on Camp Parks	Significant	<p>12.3: With regard to impacts resulting from the alignment of Windemere Parkway, a minor change in the road alignment would avoid the identified prehistoric and historic sites. If these sites cannot be avoided by realigning the road, then further, more detailed archeological studies must be completed to evaluate the resource, and supplemental environmental review may be necessary if they are determined to be important</p> <p>12.4: With regard to impacts from construction of a future public/semi-public use (e.g., a community college), because no specific use is currently proposed for this area, and because any future use would be subject to CEQA review prior to implementation by a public agency, it is impossible to recommend specific mitigation at this time other than complete avoidance</p>	Less than significant



Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Damage to or Destruction of Potential Buried Archeological Resources	Significant	<p>12.5: To avoid damage or destruction to any potential buried cultural resources, the project proponents and the County should monitor grading activities and should immediately stop all work and inform the County Community Development Department if buried cultural resources are discovered</p> <p>and, if necessary</p> <p>12.6: If the find is determined to be important by the County, the project proponents should develop a detailed mitigation plan that includes procedures for resource recovery, avoidance and preservation, or restoration, based on recommendations by a qualified archeologist</p>	Less than significant
<b>Chapter 13. Electromagnetic Fields</b>			
<b>Project-Related Impacts</b>			
Exposure of New Residents to Electromagnetic Fields	Significant	<p>13.1: The precise electric and magnetic field strengths of the transmission lines in the Dougherty Valley planning area should be measured by a qualified professional and verified by PG&amp;E</p> <p>13.2: The project proponents should determine the distance from the PG&amp;E transmission lines at which electric and magnetic field strengths are equal to or less than those associated with local distribution lines. The project proponents should also identify the affected residential lots on proposed tentative maps. An advisory disclosure statement recorded on all deeds should disclose the potential adverse health effects of EMFs associated with the PG&amp;E transmission lines and DHS's recommendation that individuals adopt a "prudent avoidance" strategy, limiting personal exposures to EMFs when it can be done at a reasonable cost and with reasonable effort</p>	Less than significant
Potential Exposure of School-Age Children at Public School Sites to Electromagnetic Fields	Less than significant	No mitigation is required	Less than significant
<b>Chapter 14. Housing, Population, and Employment</b>			
<b>Project-Related Impacts</b>			
Population Increase of About 29,000	Less than significant	No mitigation is required	Less than significant

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Addition of 11,000 Units to the Tri-Valley Region Housing Supply	Beneficial	No mitigation is required	Beneficial
Increased County Employment	Beneficial	No mitigation is required	Beneficial
Improvement in Existing Jobs/Housing Ratio	Beneficial	No mitigation is required	Beneficial
Consistency with Contra Costa County's Affordable Housing Policy and ABAG's Fair Share Allocation for the County	Beneficial	No mitigation is required	Beneficial

### Chapter 15. Visual Quality

#### Project-Related Impacts

Change in Visual Character from Rural/Pastoral to Residential/Commercial	Significant	No mitigation is available	Significant and unavoidable
Loss of a County-Designated Scenic Route	Significant	No mitigation is available	Significant and unavoidable
Substantial Alteration of Natural Landforms	Significant	<p>15.1: The project proponents should maintain natural landforms and contours as much as possible by designing grading to balance cut and fill within planning areas so that there is no net export or import of earth between planning areas.</p> <p>15.2: The project proponents should design grading to emulate natural landforms in the immediate vicinity of the graded area. All manufactured slope edges should be rounded and slope percentages varied to create undulating cut-and-fill slopes. As specified in the DVDSP, slopes should average 3:1 horizontal-to-vertical, with no cut slope exceeding 2:1 and no fill slope exceeding 3:1 in steepness.</p> <p>15.3: The project proponents should revegetate with native vegetation on all graded areas, using species and patterns designed to emulate natural native vegetation patterns of the region. The revegetation program should be designed by a qualified revegetation specialist and approved and monitored by the County as a condition of tentative maps.</p>	Significant and unavoidable
45% Reduction in Visually Prominent Open Space	Significant	15.4: The project proponents are proposing to dedicate the remaining open space areas to a qualified agency or organization to be conserved and managed to maintain remaining open space values in perpetuity.	Significant and unavoidable

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Introduction of Structures and Other Built Features that May Reduce Visual Quality	Significant	15.5: The project proponents should screen residential and commercial development and other built facilities with berms and native vegetation where these features will be visible from entrances into the planning area, recreation areas and features (e.g., trails), and scenic features (e.g., scenic routes and important viewing locations).	Less than significant
		15.6: The project proponents should restore native habitat types, especially wetland, riparian, and oak woodland types, for key areas within the scenic corridor to create greater diversity of high-quality visual resources in the planning area.	
		15.7: The project proponents should ensure that only earthtone colors be used for all structures and buildings visible from adjacent residences, gateways, important viewing locations, recreation areas and features, and other important locations both on and off the planning area.	
		15.8: The project proponents should design any signs, other than required traffic signs, to be less than 4 feet in height and 12 feet in width and constructed of native-appearing materials (e.g., colored and textured concrete, native stone, or wood) and use only earthtone or subdued colors.	
		15.9: The project proponents should set back all houses, garages, storage units, and other structures of more than 6 feet in height a minimum of 25 feet from the center of the rounded edge of cut or fill slopes where the structures are to be located above the slope.	

Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		<p>15.10: The project proponents should limit the height of all structures to 30 feet or less for all housing and commercial development on hillsides and terraces and 15 feet or less for areas between 25 and 40 feet from the center of the rounded edge of cut or fill slopes where the structures are to be located above the slope.</p>	
		<p>15.11: The project proponents should ensure that no buildings or structures (including water tanks) interrupt the continuous unbroken ridgelines within the planning area when viewed from gateway areas, recreation areas, recreation features, residences, or other important onsite or offsite locations.</p>	
		<p>15.12: The project proponents should design erosion control and drainage features to conform with the natural topography, vegetative patterns, and colors of the area and screen these features with berms and native vegetation.</p>	



Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Siting of Infrastructure Elements and Other Vertical Elements that Reduce Visual Quality	Significant	<p>15.13: The project proponents should site facilities in locations of low visual sensitivity and below ridgelines so that they do not visually interrupt the continuous unbroken lines of ridge tops when viewed from important locations both onsite and offsite.</p> <p>15.14: The project proponents should site facilities such as water storage tanks by minimizing sidewall exposure through methods such as full or partial burial, constructing berms, planting native vegetative screens, and using earthtone colors that blend closely with the natural surroundings.</p> <p>15.15: The project proponents should minimize visibility and visual impacts of access and maintenance roads by minimizing sidecast and cut-and-fill requirements, revegetating disturbed areas with native vegetation, siting roads and varying their width to fit closely with the natural topography, designing road portions located high on hillsides to be 4% outsloping with rolling dips and road portions located low on hillsides to be insloping with ditches and culverts, and surfacing roads with dense, graded, crushed aggregate.</p> <p>15.16: The project proponents should design any artificial water features to be small in scale and natural appearing.</p>	Less than significant
Roads and Road Improvements in Creek Corridors	Significant	<p>15.17: The project proponents should provide a setback for all roads in creek corridors a minimum of 150 feet between the creek centerline and the edge of the road and establish and maintain a native vegetation buffer in the setback area between the creek and road.</p> <p>15.18: The project proponents should retain and revegetate with native vegetation existing natural drainages where feasible.</p>	Less than significant

Table 2-1. Continued

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Introduction of Recreation Features and Elements that Reduce Visual Quality	Significant	15.19: The project proponents should minimize grading and alteration of natural landform, creeks, and drainage elements for the golf course and other recreation areas, staging areas, and trails.	Less than significant
		15.20: The project proponents should maintain existing drainage ways above ground where feasible (i.e., use bridges at all street crossings of major drainages and place culverts only at minor road crossings over minor drainages and only for the minimum required crossing distance).	
		15.21: The project proponents should establish a native vegetation buffer of a minimum width of 50 feet between creek centerlines and recreation features (e.g., volleyball courts, tennis courts, and other active recreation features) for Alamo Creek and the west branch of Alamo Creek throughout the planning area. Also, bicycle trails should not run closer than 50 feet to creek centerlines except near crossing points or observation or interpretive areas.	
		15.22: The project proponents should design the golf course to maintain all drainages as open drainages and use only small bridges and short culverts for pedestrian, cart path, and maintenance-vehicle crossings.	
		15.23: The project proponents should stabilize creek banks and make other improvements in recreation areas using only native-appearing construction materials (e.g., timber, rocks, and textured, earth-tone concrete) and native vegetation where feasible.	
Removal of Visually Important Vegetation	Significant	15.24: The project proponents should site recreation trails and other similar features along one bank of the creek corridor and retain the other in a more natural condition.	Less than significant
		11.1 through 11.15: These measures are described above.	

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Visual Impacts of Fencing, Fire Breaks, and Fire Roads	Significant	15.15: This measure is described above.  15.25: The project proponents should use low fencing of welded wire mesh or barbed wire strand no higher than necessary to control stock and domestic animal access.	Less than significant
Introduction of Stormwater Detention Facilities	Significant	15.26: The project proponents should design stormwater detention facilities to fit the area's natural landform patterns and be curvilinear in form and with undulating sideslopes averaging 3:1 or less in steepness, use natural-appearing materials and colors for drainage facility structures, and screen all drainage facility structures from important viewpoints using native vegetation.	Less than significant
Light and Glare on Residents Both Onsite and Offsite	Significant	15.27: The project proponents should design lighting for concentrated night-lit areas, such as commercial areas, sports areas, community centers, gathering areas, and parking lots to minimize their offsite visibility by using downward-oriented high-pressure sodium lights and physical screening materials.	Less than significant
<b>Cumulative Impacts</b>			
Cumulative Regional Loss of Rural/Pastoral Visual Character, Reduced Views of Open Space, and Loss of Scenic Views in the Region	Significant	No mitigation is available	Significant and unavoidable





## **Chapter 3. Project Description**

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The proposed project is the development of the Dougherty Valley planning area based on a Contra Costa County general plan amendment, specific plan, rezoning, and related entitlements that include preliminary and final development plans, tentative and final subdivision maps, development agreements, sphere changes and annexations, grading and building permits, other implementing permits from various agencies described below, and related development improvements.

Development of the Dougherty Valley planning area under the proposed specific plan would allow construction of up to 11,000 homes, with supporting commercial, office, civic, and open space land uses. This chapter describes the project and its characteristics. The DVSP and GPA (PBR 1992) should be referenced for more detailed information about the project. Alternatives to the project are described at the end of this chapter.

### **PROJECT LOCATION**

The Dougherty Valley planning area is located on approximately 5,979 acres in an unincorporated part of south-central Contra Costa County generally east of the City of San Ramon and approximately 20 miles south of Martinez (Figure 3-1). The planning area includes private ranch land and the northern part of the U.S. Army Parks Reserve Forces Training Area (Camp Parks). The planning area is generally bound by the City of San Ramon to the west, the Alameda County line and developing areas in East Dublin to the south, the town of Danville and the Blackhawk development to the north, and rural-residential and agricultural lands of Tassajara Valley to the east (Figure 3-2).

### **PROJECT SETTING**

#### **Regional Setting**

The planning area is located at the urbanizing southeastern edge of the central County subarea of Contra Costa County. The central County subarea includes 10 of the 18 incorporated cities and over half the total population of the County (Contra Costa County 1991). The planning area is located in the eastern part of what is known as the Tri-Valley region of Contra Costa and Alameda Counties. The Tri-Valley region includes the incorporated communities of Danville and San Ramon and the unincorporated communities of Alamo, Blackhawk, and Tassajara Valley in Contra Costa County, and the Cities of

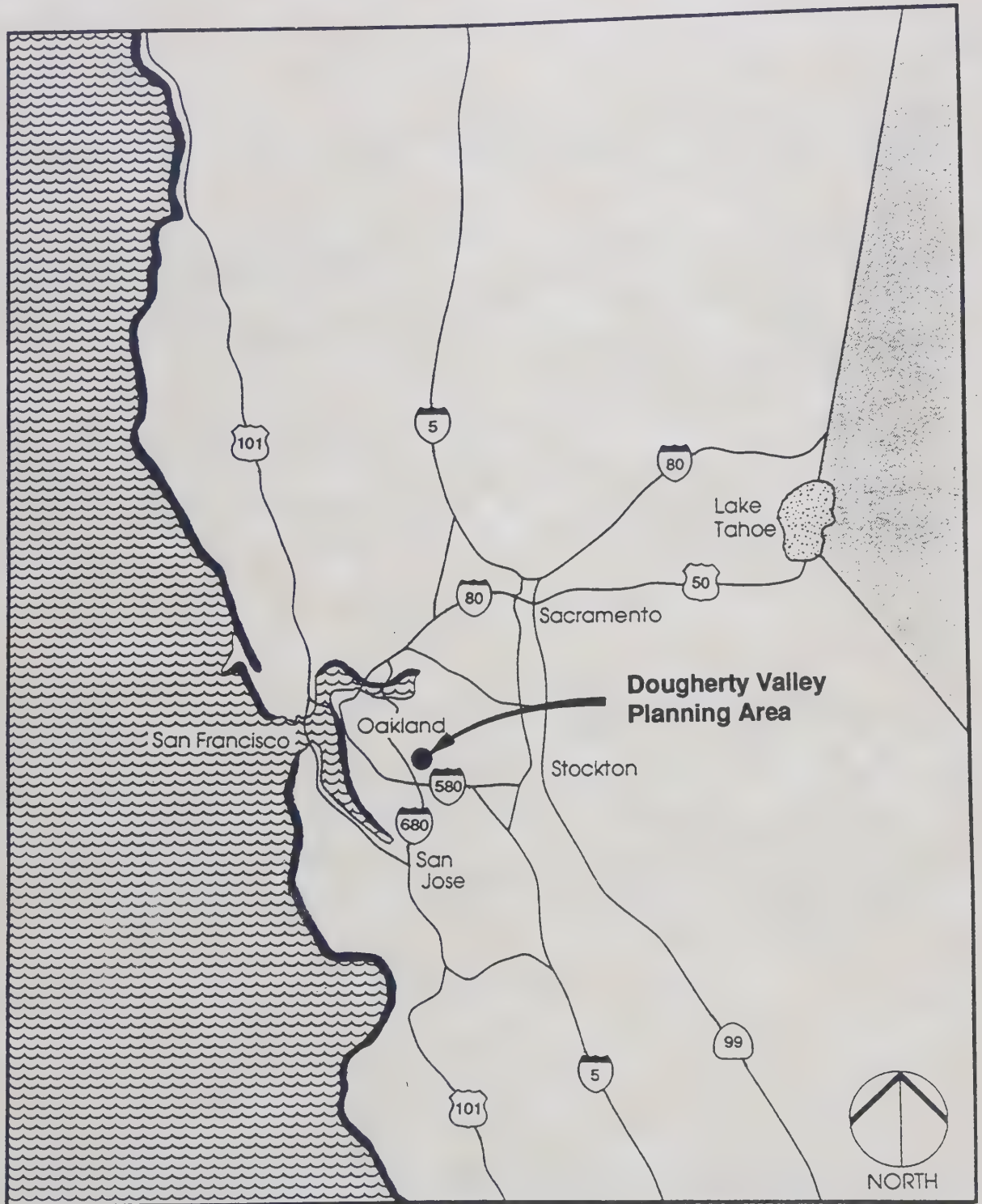


Figure 3-1. Regional Location of the Dougherty Valley Planning Area



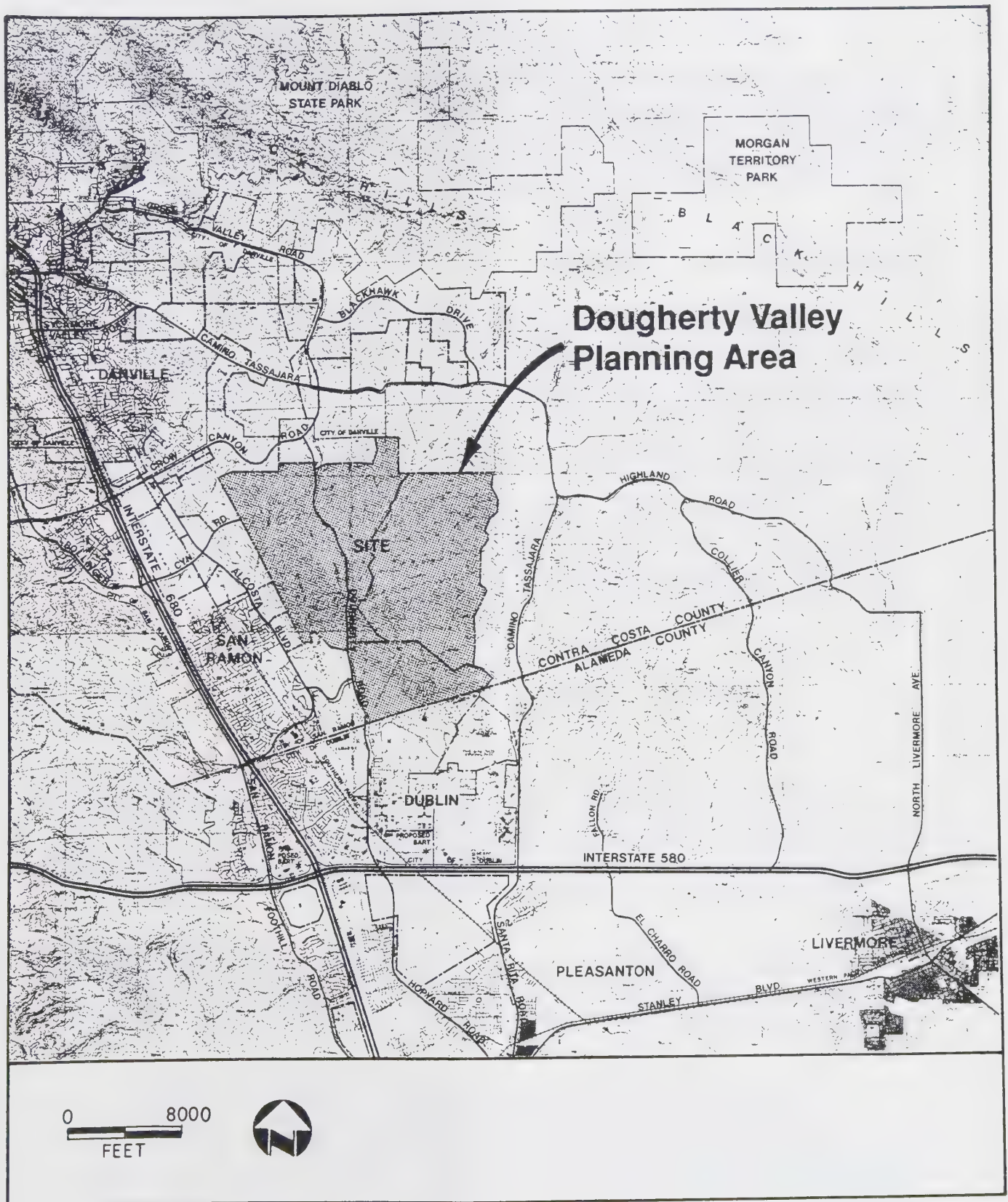


Figure 3-2. Dougherty Valley Planning Area and Vicinity

Source: PBR 1992

Dublin, Pleasanton, and Livermore and surrounding unincorporated areas in Alameda County (Figure 3-2). The area is composed of mostly low-density residential communities that have developed in the flat valleys between the East Bay Hills and the Diablo Range to the east, south of Mt. Diablo (Contra Costa County 1991). The area has experienced rapid growth from the 1960s to the present (PBR 1992).

### **Describe Jobs/Commerce in Tri-Valley**

Employment growth in the Tri-Valley area has been increasing as a percentage of the annual employment growth in the Bay Area, with this trend expected to continue over the next 15 years (Tri-Valley Wastewater Authority 1991). Service jobs represent the largest employment sector in the area, with retail and construction, communications and utilities, finance, insurance, real estate, and government making up the balance of jobs. Agriculture and mining only provide 1% of area jobs (Tri-Valley Wastewater Authority, 1991). There is no one community in the Tri-Valley area that is the dominant employment or residential center. In 1990, about two thirds of area jobs were located in Livermore and Pleasanton and one-fourth of the area jobs were in San Ramon. The balance of employment and residential growth in the Tri-Valley area has been changing and is expected to continue to change as recently approved employment-generating projects and residential developments are built out and new projects are considered throughout the region.

### **Planning Area Setting**

The planning area itself is undeveloped and consists of a complex series of steep ridges, rolling hills, and relatively flat valleys that generally drain into Alamo Creek, which flows to the southwest. Dougherty Valley is surrounded by ridges that physically separate it from generally developed San Ramon Valley to the west and rural Tassajara Valley to the east. Figure 3-3 shows the Dougherty Valley planning area contour line pattern and ownership.

The land in the planning area is owned by Shapell Industries (2,708 acres; formerly Gale Ranch), Windemere Properties (2,379 acres; formerly Gumpert Ranch), and the U.S. Army (the northern approximately 892 acres of Camp Parks in Contra Costa County) (Figure 3-3).

The privately owned land is leased to ranchers, who graze cattle seasonally in the area. Grain is dryland farmed in the flat valley regions on fields that are rotated out of production every 3 years. The only buildings located on the private property are at the ranch headquarters in the south end of the valley, which serves as a staging area for ranching operations.



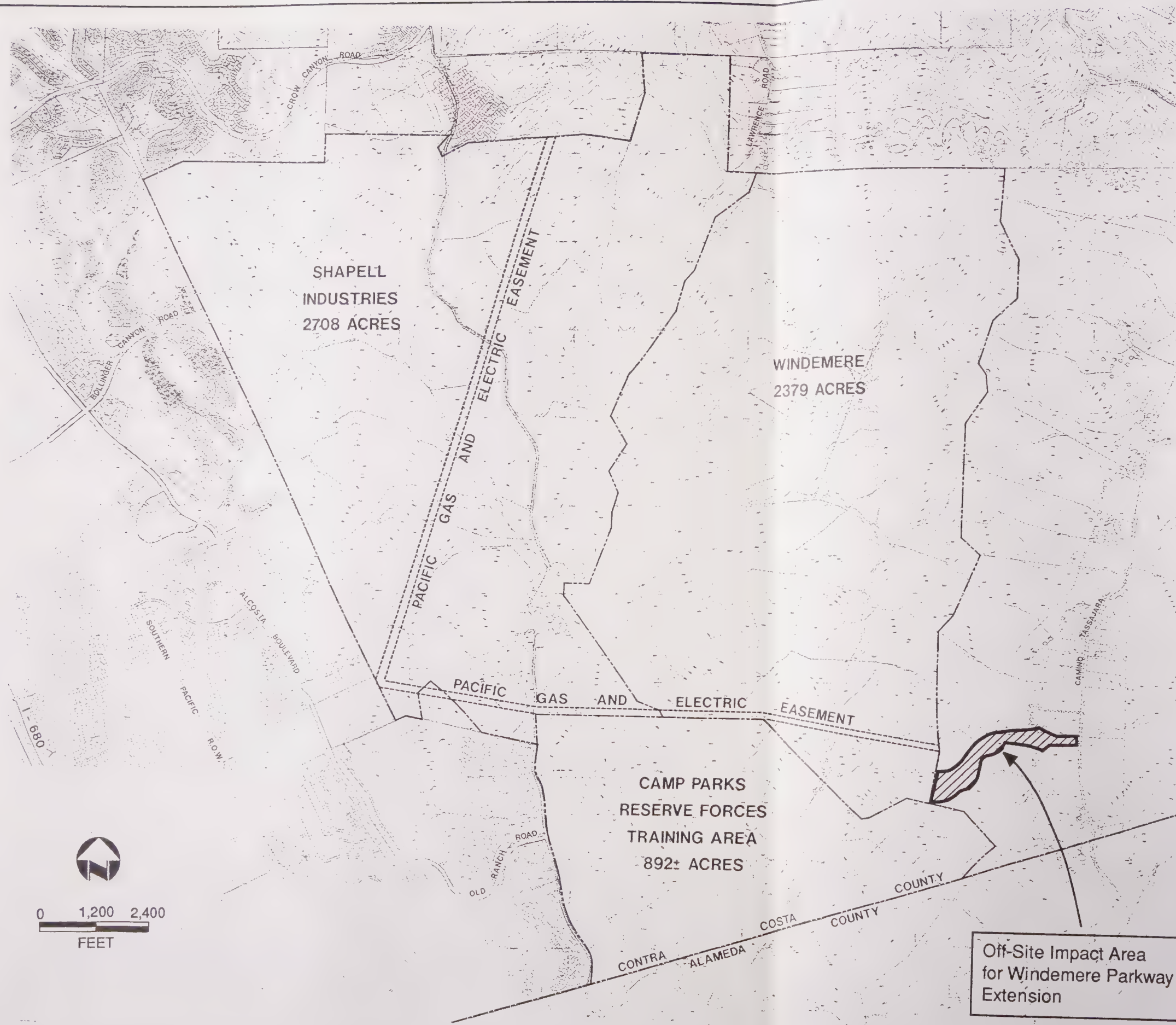


Figure 3-3.  
Topographic Patterns and  
Ownership of the Dougherty  
Valley Planning Area

Note: Gross acreage is not based on engineering surveys. Acreage does not reflect proposed land transfer.



The southern portion of the planning area is within Camp Parks, which is used predominantly during summer for training Army reserves and activities such as bivouacking and weapons-firing practice.

The only public road that traverses the site is Dougherty Road, which links Crow Canyon Road north of the planning area to Interstate 580 (I-580) south of the area. Two Pacific Gas and Electric Company (PG&E) power transmission line easements cross the western and southern portions of the site to intersect in the southwest corner of the planning area (Figure 3-3).

West of the planning area are developed low-density and medium-density residential subdivisions in the City of San Ramon, with office and manufacturing buildings located further west along Interstate 680 (I-680). Medium-density residential subdivisions are located immediately north in San Ramon. Low-density residential and neighborhood commercial uses are developed in unincorporated areas along Camino Tassajara. Rural residential properties are located along Lawrence Road in the Town of Danville. The area to the east of the planning area is unincorporated and generally undeveloped, consisting of grassy hillsides and agricultural uses, with rural residences located along Camino Tassajara. The main portion of Camp Parks is located directly south of the planning area. Further south is the Santa Rita Rehabilitation Center within unincorporated Alameda County. To the southwest are developing residential subdivisions in the City of Dublin.

More detailed information on the regional and local land use setting is contained in Chapter 4, "Land Use".

## **PROJECT BACKGROUND**

### **Previous Ownership**

The planning area was originally part of the 18,000-acre Rancho San Ramon. In the mid-1800s, the land was sold to J.W. Dougherty. The Dougherty estate was later acquired by two judges (Gale and Gumpert). These ranches have now been acquired by Shapell Industries (Gale Ranch) and Windemere Properties (Gumpert Ranch). The southern portion of the planning area is and has been owned by the U.S. Army and is part of Camp Parks.

### **Previous Planning Activity**

The planning area has been the subject of, or included in, several land use planning efforts over the last decade, which has set the stage for the present development proposals.

**Contra Costa County General Plan Amendments/Williamson Act Contracts.** In 1983, Gumpert Ranch (now the Windemere Property) was the subject of a proposed general plan amendment to change the County's San Ramon Valley Area General Plan land use



designation from Agricultural Preserve to several urban designations. In addition, the 2,300-acre site was proposed for withdrawal from its Land Conservation Contract (Williamson Act contract) under the law's one-time "window" provision. This proposal was withdrawn after preparation of an EIR but prior to public hearings by the County, and the Agricultural Preserve designation was retained. The Williamson Act contract on this portion of the site, however, expired in April 1992 under a request for nonrenewal submitted in 1982.

The Williamson Act contract on the Shapell property expired in November 1991 under a request for nonrenewal submitted in 1981.

In 1991, Contra Costa County completed a comprehensive general plan update that changed the land use designation for the Dougherty Valley portion of the County from Agricultural Preserve to Agricultural Lands but placed most of the potential planning area within an urban limit line (ULL), which identifies the outer boundaries of urban development within the County. The Camp Parks portion of the planning area was designated "Public & Semi Public" and is located outside the ULL.

**Proposed Specific Plan by the City of San Ramon.** The City of San Ramon is currently considering a Growth Management and Specific Plan (September 1991) for the Dougherty Valley planning area, which is within the City's planning area (but not sphere of influence). San Ramon is the lead agency for its project and has prepared an EIR to analyze its environmental impacts, with the County providing input to the City's plan in accordance with an established cooperative arrangement between the City and the County. The County's proposed specific plan attempts to integrate many of the City's goals and policies as expressed in its plan.

## **PROJECT PURPOSE AND OBJECTIVES**

The purpose and objectives of the project, as set forth in Contra Costa County's DVSP, are to provide the following:

- a new, primarily residential community accessible to employment opportunities within the Tri-Valley region, in which housing cost reflects the income levels associated with those employment opportunities;
- 11,000 homes offering a diverse range of housing types and densities for all age groups and housing sizes;
- up to 2,750 homes affordable to low- and moderate-income households (based on 25% of the total number of homes built);
- facilities and services necessary to protect public health, safety, and welfare and to meet established growth management standards;



- needed housing in a suitable location to meet the demand generated by major nearby employment centers;
- public transit, roadways, and trails to serve the planning area, linked to and compatible with existing and planned circulation systems;
- a comprehensive network of open spaces that enhance the environment and separate Dougherty Valley from adjacent development;
- a system of parks accessible to Dougherty Valley residents and the Tri-Valley region offering a variety of recreational opportunities;
- a village center that includes commercial, office, and community facilities accessible to all residents located at the meeting place of the central transportation and open space corridors;
- direction to special districts to plan and provide for public utilities and services to facilitate land use determinations made by Contra Costa County; and
- a well-designed community that integrates in scale and form a mix of uses and offers a desirable way of life. (Rea pers. comm.)

## **PROJECT CHARACTERISTICS**

The project includes several specific entitlements and the subsequent development of the planning area under these entitlements.

### **Proposed General Plan Amendment**

The project includes a proposed GPA to amend the general plan text and maps in a number of places where policies for the Dougherty Valley planning area are indicated. The full text of the Dougherty Valley GPA is available from the County Department of Community Development. The following is a brief summary of the changes being proposed for the general plan as part of this project.

#### **Land Use Element**

**Minor Urban Limit Line Adjustment.** The planning area includes a portion of Camp Parks that is currently outside the ULL. A net area of 37 acres is proposed for land transfer into the area to be allowed for development to provide a more logical land use boundary.

**New Mixed Use Description.** The general plan's mixed use category would be amended to recognize the Dougherty Valley village center.

**Land Use Map Modification.** The land use foldout map would be modified from the Agricultural Lands and Public/Semi-Public designations on the planning area to Single Family Residential Medium Density, Multiple Family Residential Low Density, Multiple Family Residential High Density, Commercial, Mixed Use, Public/Semi-Public, Parks and Recreation, and Open Space.

**New Planning Policies.** Text that describes the County's planning policies for Dougherty Valley would be added to permit development of a residential community of up to 11,000 homes supported by retail, office, and community services use and integrating open space buffers and protected creek corridors. This language would replace text stating that the general plan (as adopted in January 1991) does not contain specific planning policies for the Dougherty Valley planning area to reflect the then-ongoing planning efforts of the County and the City of San Ramon, as described above.

**Minor Text and Map Modifications to Identify Dougherty Valley.** Text and maps would be modified to identify Dougherty Valley.

### **Growth Management Element**

**Level-of-Service Map Modification.** Map showing level-of-service areas would be changed from "rural" to "urban".

### **Transportation and Circulation Element**

**Figure Modifications.** Figures showing the roadway network plan would be modified to show new arterials, and the transit network plan would be changed to show the planning area within "a local transit service area".

### **Housing Element**

**Figure and Table Modifications.** A figure would be changed to show the planning area and other areas on Camino Tassajara as part of the San Ramon subarea rather than the Other East County subarea. A table and figure would be amended to add traffic zone information reflecting the DVSP.

### **Public Facilities and Services Element**

**Figure Modifications.** Figures would be modified to show the planning area as an Urban Use Area; figures would be modified to show the location of a proposed fire station, school sites, and branch library to reflect the DVSP.

## **Conservation Element**

**Figure Modification.** The Important Farmlands Map would be modified to delete the planning area.

## **Open Space Element**

**Figure Modifications.** The scenic ridges and waterways map would be amended to reflect area development and past development decisions; the Local Parks, bicycle Trails, Hiking Trails, and Riding (Equestrian) Trails maps would be modified to reflect these elements as planned in the DVSP.

## **Noise Element**

**Figure and Table Modifications.** The Noise Contours map and Future Noise Levels table would be modified to reflect revised noise characteristics of the planning area.

## **Proposed Specific Plan**

The project involves the adoption of a specific plan to govern development within the planning area. A specific plan is authorized under Government Code Section 65451 et seq. and includes text and diagrams showing the location and extent of land uses within the planning area, the location and extent of infrastructure and circulation within the planning area, and specific measures for implementing the provisions of the specific plan.

The specific plan guides the subsequent design of subdivisions and capital facilities. The Subdivision Map Act provides that no tentative or final subdivision map may be approved unless it is consistent with the adopted specific plan. No capital facilities, such as streets, sewers, and public buildings, may be approved or constructed unless the local government has reviewed the capital facility for conformity to the adopted specific plan.

The major components of the draft specific plan are the land use diagram and associated land use designations; the elements of the draft specific plan; and the buildout acreage, square footage, dwelling unit, and population estimates allowed by implementation of the draft specific plan.

## **Elements of the Dougherty Valley Draft Specific Plan**

The DVSP provides the framework for implementing project goals and objectives by describing the project in terms of the following overall organizing components:



- neighborhoods of varying sizes intended to establish a unique identity associated with their individual topographic relationship and geographic linkages within the open space and trail system;
- a trail system that encourages internal pedestrian and bicycle movement along two long creek corridors and a central arterial road parkway that connect with a regional perimeter open space trail network;
- a village center located at the confluence of the two major creek corridors and the major roadways, providing a pedestrian-oriented neighborhood shopping center, higher-density residential development, and public gathering places and community buildings located near a prominent water feature that is part of a major community park;
- a street system that would extend existing area arterials through the project and provide collector and local streets of varying scales on grid, axial, and curvilinear alignments to help establish community character;
- recreation that would center on a system of community and neighborhood parks, undeveloped open space linked by pathways, and an 18-hole golf course in the Coyote Creek area; and
- open space, comprising 55% of the planning area, which would provide a system of trails linking neighborhoods, parks, and schools and regional linkages to the south and north.

The specific plan document contains the following elements:

- Land Use,
- Housing Characteristics,
- Circulation,
- Open Space and Conservation,
- Community Facilities,
- Utilities,
- Community Design,
- Growth Management,
- Relationship to the General Plan, and
- Implementation.

The following paragraphs summarize each of the elements and the buildout estimates. The specific plan document contains a complete listing of the goals, policies, and implementation programs comprising each element.

### **Land Use Element**

**Land Use Diagram.** The DVSP land use diagram (Figure 3-4) illustrates the proposed physical distribution of land uses within the planning area.



Figure 3-4.  
Land Use Diagram for the  
Dougherty Valley  
Planning Area



## LEGEND

SM	SINGLE FAMILY MEDIUM DENSITY RESIDENTIAL
ML	MULTIPLE FAMILY LOW DENSITY RESIDENTIAL
MH	MULTIPLE FAMILY HIGH DENSITY RESIDENTIAL
C	COMMERCIAL
MU	MIXED USE VILLAGE CENTER INCLUDES MULTIPLE FAMILY MEDIUM DENSITY RESIDENTIAL
P/SP	PUBLIC/SEMI-PUBLIC COMMUNITY COLLEGE; ELEMENTARY, MIDDLE, HIGH SCHOOLS; OTHER
PR	PARKS AND RECREATION
OS	OPEN SPACE
	PRIMARY ROADS



**Land Use Pattern and Target Densities.** The land use element defines the overall pattern for development and conservation of Dougherty Valley. It describes the policies that structure the type, extent, and intensity of development. Following are brief description of the major features of this element:

- a maximum of 11,000 dwelling units within the planning area based on development that allows a mix of higher and lower residential densities within each target density area shown on the plan allowing for transfers of density between target density areas so long as overall density within each area do not exceed the target;
- recognition that the ultimate density in a given residentially designated area may vary based on factors such as geologic features, economic feasibility, visual quality considerations, and design integrity;
- designation of lower-density residential uses surrounding the valley floor; medium-density and medium-high-density uses in the flatter, more central portions of the planning area; and higher-density uses on the valley floor in and around the mixed use area;
- designation of residential support uses, such as schools, parks, and recreational uses that provide identity at a neighborhood scale;
- designation of a mixed-use village center for intensive retail, office, and high-density residential development that would serve as the primary gathering place for the community and where pedestrian, vehicular, and transit linkages converge;
- designation of sites adjacent to the village center for civic uses, including a community center, senior center, library, and fire station and for parks and recreational uses associated with a 72-acre community park site;
- designation of two convenience retail centers at arterial intersections for uses such as small convenience stores, pharmacies, and other residential support uses;
- designation of a system of open space and park lands that includes linear parks along major creek corridors as well as community, neighborhood, and pocket parks; a golf course; and sites for potential recreation facilities; and
- designation of public, semi-public, and open space land uses for the development of a community college or other public facilities in the Camp Parks portion of the planning area (Contra Costa County) if the base becomes surplus and is no longer required for military use.

**Land Transfer and Urban Limit Line Adjustment.** Development of the southern edge of the Windemere property under the specific plan would require a proposed land transfer (exchange) between the Windemere property and the U.S. Army. This land transfer is proposed to allow a more suitable separation of Camp Parks from the rest of the



planning area by using the proposed arterial road (Windemere Parkway) as a boundary (Figure 3-5). The specific plan presupposes the approval of this land transfer and calls for a ULL adjustment that would add 37 acres to the urbanized area. However, the plan also provides for a realignment of the southerly arterial road and a reduction in the adjacent proposed residential area to accommodate the existing property boundaries if the land transfer is not approved.

**Land Use Designations.** The land use designations shown on the land use diagram (Figure 3-4) serve as target densities and are not intended to limit the variety of residential densities that could be developed in any given location. The full range of residential densities permitted in the County's general plan would be permitted within each target density area, so long as the overall density for that area does not exceed the target density. These designations are described in the specific plan and range from Single Family Very Low Density Residential (SVL) at up to 0.9 units per net acre (na) to Multiple Family High Density Residential (MH) at up to 29.9 dwelling units per net acre (du/na).

The target density land use designations indicated on the land use diagram are described in the DVSP and are briefly defined below (although these definitions describe a housing type for each designation, these are only typical; each target density permits a variety of housing types):

■ Residential:

- single-family medium-density residential (SM): 3.0 to 4.9 du/na single-family detached houses, including smaller lot single-family detached houses;
- multiple family low-density residential (ML): 7.3 to 11.9 du/na, such as small lot single-family detached houses, attached townhouses, multifamily flats, and townhouses-over-flat units;
- multiple family high-density residential (MH): 21.0 to 29.9 du/na, such as multifamily rental apartments, condominium flats, single-room occupancy units, flat-over-flat units, and various forms of senior citizen housing; and
- mixed use (MU) (village center): multiple family medium-density residential development at 12.0 to 20.0 du/na, such as rental apartments, condominium flats, townhouses and stacked flat units, and various forms of senior citizen housing.

■ Nonresidential:

- commercial: convenience retail, including convenience stores, pharmacies, automotive support uses, and similar scale retail uses and
- mixed use (village center): retail, office, multifamily residential (mentioned above), recreational, and civic uses.



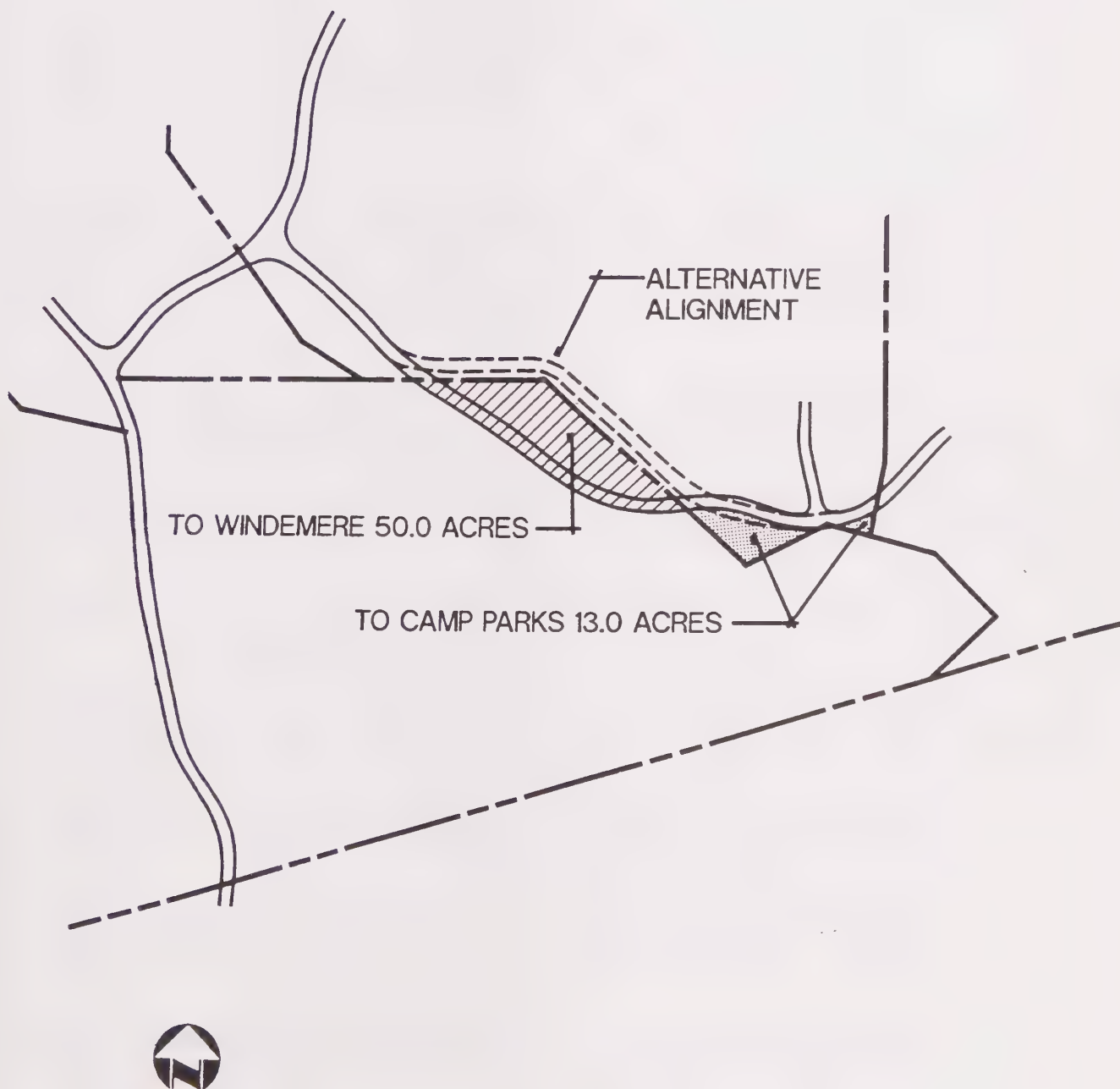


Figure 3-5. Proposed Land Transfer (Exchange) for the Dougherty Valley Specific Plan

Source: PBR 1992

- **Public/semipublic:** public and institutional uses, such as schools, churches, public offices, fire stations, libraries, and military uses; and public transportation corridors and privately owned transportation and utility corridors, such as railroads, transmission lines, and pipelines.
- **Parks and recreation:** proposed park sites to be developed for public or private recreational uses, including public linear parks along major creek corridors; public, community, neighborhood, and pocket parks; and private recreational facilities, such as golf courses, equestrian centers, private lakes, swimming clubs, and small conference centers.
- **Open space:** publicly or privately owned open space lands, other than parks and recreation uses, to be reserved for passive recreation and the preservation and restoration of ecological values; allowed uses include cattle grazing; hiking; picnicking; horseback riding; support uses for recreation or agriculture, such as staging areas and cattle chutes; and utility uses, such as water tanks.

**Buildout Estimates.** Table 3-1 presents gross acres by proposed land use designation within the planning area. Approximately 37.7% of the land is planned for residential uses, 0.8% for employment-generating uses, 4.8% for public/semipublic uses, 54% for parks and recreation uses and open space uses, and 2.6% for major roads. Excluding the Camp Parks portion of the planning area, parks and recreation uses and open space uses comprise up to 57.7% of the privately owned acreage, with each landowner providing more than 55% of their gross acreage to remain as open space.

Table 3-2 presents square footage estimates for the proposed village center, two retail convenience centers, and public facilities planned for the community park.

**Housing Element.** The housing element provides policy directions and buildout estimates. The following is a brief description of the major policy directions of this element:

- provision of a broad range of housing densities and unit types within neighborhoods, with a majority (about 60%) of single-family residences consistent with the character of surrounding developed areas;
- development of a minimum 25% of all dwelling units as affordable to low- and moderate-income households, to be dispersed throughout residential neighborhoods;
- provision of suitable locations for senior housing, particularly within the village center; and
- provision of a least 400 higher-density housing units in the village center and the option to transfer housing units that are not built elsewhere to the village center's residentially designated housing unit receiver sites.

Table 3-1. Gross Acreage Estimates (at Buildout) of the Proposed Dougherty Valley Specific Plan

Land Use Designation	Gross Acreage by Owner			Total Acres
	Windemere	Shapell	Camp Parks	
Residential				
Single family, medium density (SM)	765	558	--	1,323
Multiple family, low density (ML)	--	608	--	608
Multiple family, high density (MH)	303	--	--	303
Mixed use (village center) (MU)	<u>10</u>	<u>10</u>	<u>--</u>	<u>20</u>
Subtotal	1,078	1,176	--	2,254
Nonresidential				
Commercial	7	7	--	14
Mixed use (village center)	<u>15</u>	<u>19</u>	<u>--</u>	<u>34</u>
Subtotal	22	26	--	48
Public/semipublic <sup>a</sup>				
Schools	85	35	--	120
Community college	--	--	150	150
Religious Institutions	<u>13</u>	<u>3</u>	<u>--</u>	<u>16</u>
Subtotal	98	38	150	286
Parks, recreation, and open space				
Creek corridors	70	147 <sup>b</sup>	--	217
Staging area	6	3	--	9
Community park	15	57	--	72
Golf course	--	200	--	200
Unimproved open space	<u>1,054</u>	<u>979</u>	<u>705</u>	<u>2,738</u>
Subtotal <sup>c</sup>	1,145	1,386	705	3,236
Major roads	<u>73</u>	<u>82</u>	<u>NA</u>	<u>155</u>
Total	2,416	2,708	855	5,979

Note: NA = not applicable.

<sup>a</sup> Excludes civic facilities, such as the proposed library, community center, senior center, fire station, and police substation (see Table 3-5).

<sup>b</sup> Includes 5.5 acres of the PG&E easement.

<sup>c</sup> Excludes 12-48 acres of pocket parks and 40-80 acres of neighborhood parks (see Table 3-5) and includes 82 acres of the PG&E easement.

Source: PBR 1992.

Table 3-2. Square Footage Estimates of the Dougherty Valley  
Village Center at Buildout

Use	Typical Tenants	Square Feet
Village center		
Neighborhood retail	Supermarket, drug store	100,000
Community retail	Home improvement store, cinema, restaurants	240,000
Service office	Banks, insurance, travel agencies	40,000
Office	Professional services	300,000
Commercial		
Convenience centers	Small retail stores, pharmacies, automotive support stores	20,000
Public	Community center senior center, library, fire station	60,000

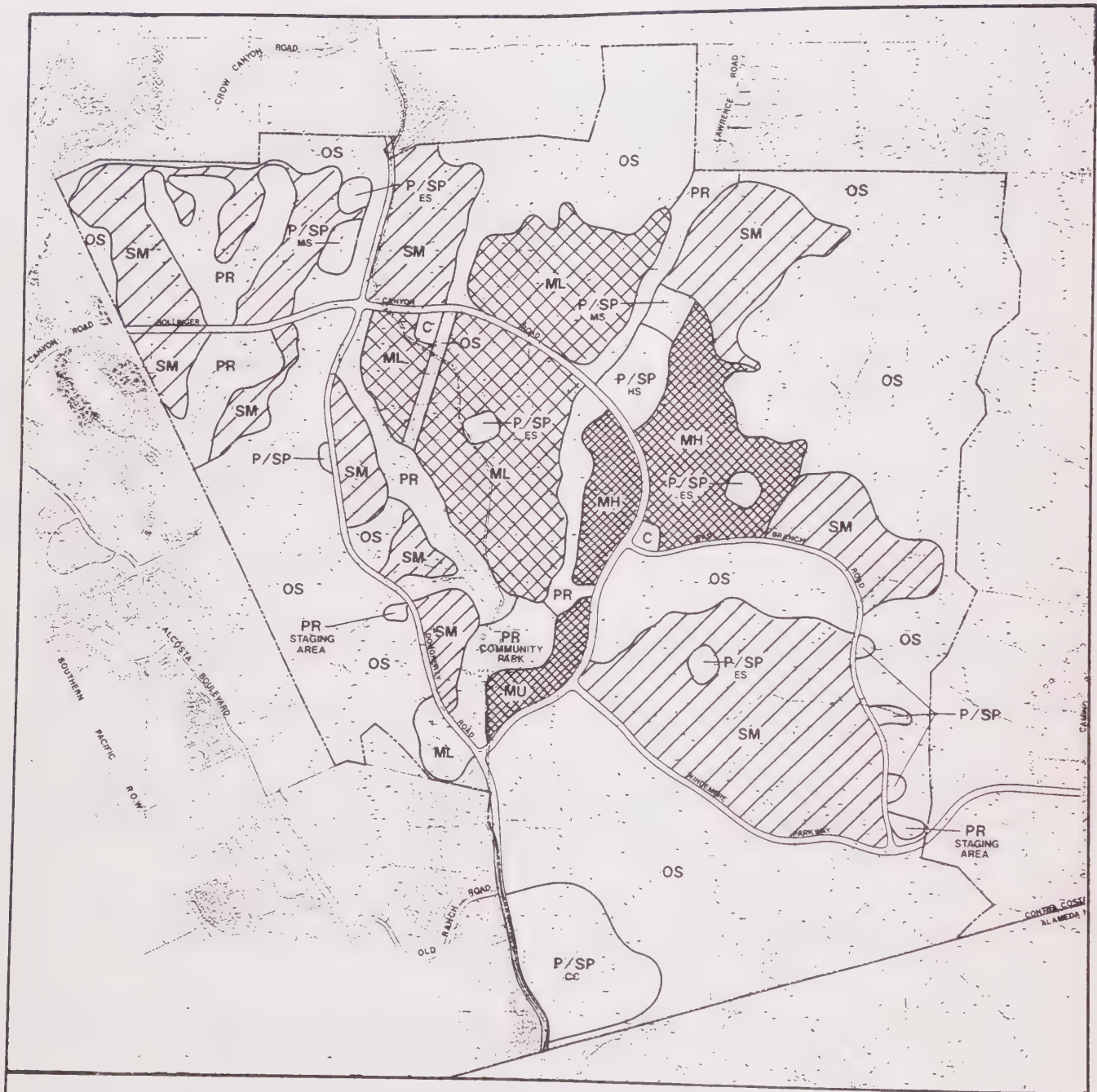


**Buildout Estimates.** Table 3-3 presents the maximum dwelling unit yield by residential target density categories. This table indicates that approximately 48.6% of the 11,000 units are proposed as within the single-family residential target density, and 51.4% are proposed within the multiple family residential density categories. Figure 3-6 shows the distribution of housing densities in the specific plan. The proposed community framework and housing product allocations are shown in Figure 3-7.

The DVSP assumes a buildout population of 29,000, which results in an average of 2.64 persons per household.

**Circulation Element.** The following is a summary of the major policy directions of the circulation element:

- four points of access to the planning area (Figure 3-8): via an upgraded Dougherty Road; the extension of Bollinger Canyon Road; and the proposed Windemere Parkway, which will extend east to Camino Tassajara;
- four standard street sections: major arterial, arterial, collector street, and local street;
- an internal circulation system consisting of the following (Figure 3-8):
  - realignment and reconstruction of Dougherty Road as a six-lane major arterial;
  - extension of Bollinger Canyon Road east from the City of San Ramon to Dougherty Road and west of the proposed Windemere Parkway as a four-lane major arterial with right-of-way (ROW) reserved for six lanes;
  - extension of Bollinger Canyon Road between Dougherty Road and the proposed Windemere Parkway as a four-lane arterial with ROW reserved in the median for a potential rail transit line;
  - construction of Windemere Parkway from Bollinger Canyon Road to Tassajara Road as a four-lane major arterial with ROW reserved for six lanes;
  - construction of the proposed East Branch Road as a four-lane arterial between Bollinger Canyon Road and Windemere Parkway;
  - reservation of an additional 10 feet of ROW on either side of Dougherty Road, Bollinger Canyon Road, and Windemere Parkway for a distance of 300 feet from all internal intersections for turn lanes; and
  - construction of a collector and local street network that provides convenient and safe access to residential neighborhoods and discourages through traffic in residential neighborhoods;



### LEGEND

 Single Family Medium Density Residential

 Multiple Family High Density Residential

 Multiple Family Low Density Residential

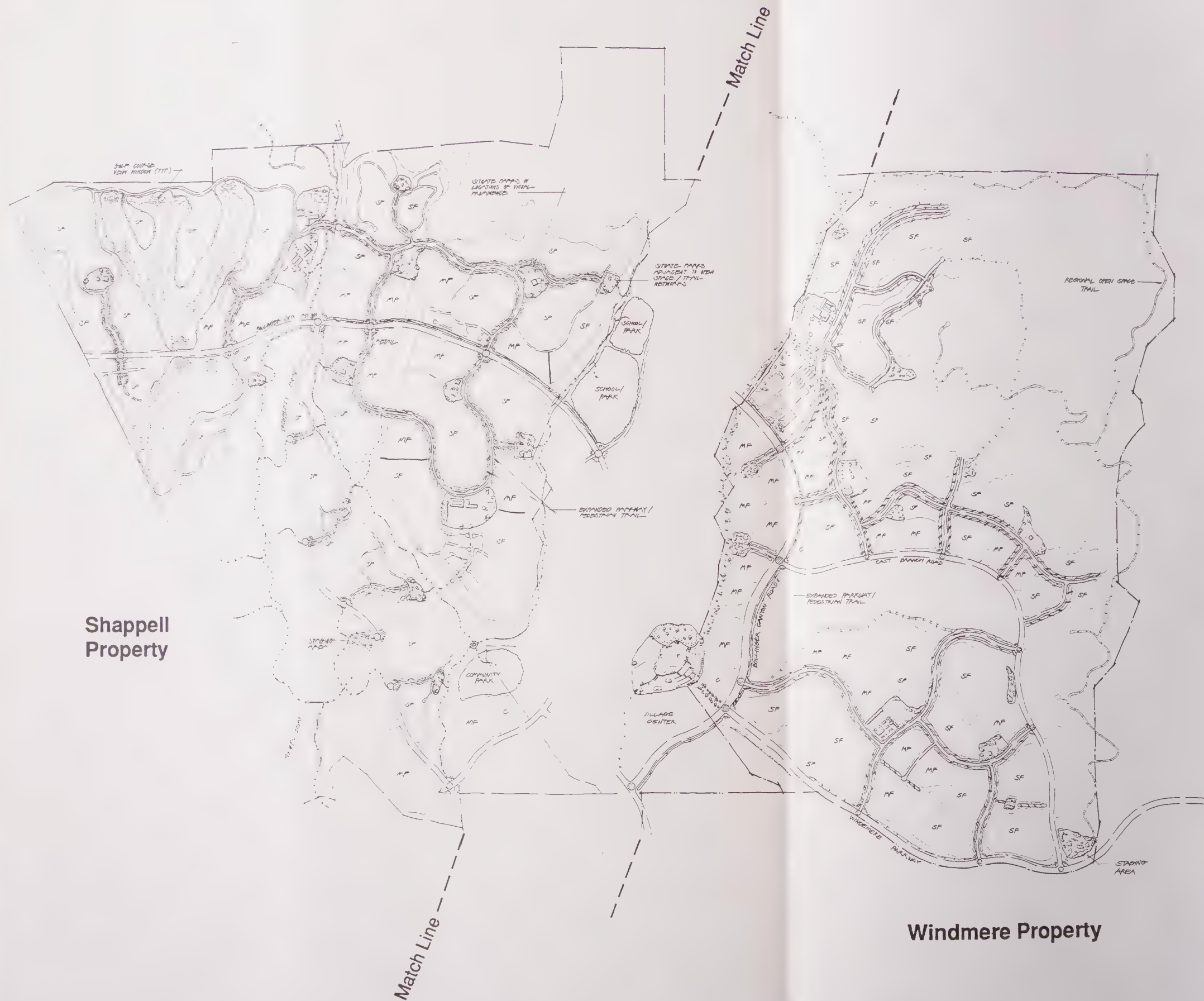


0 2400  
FEET

Figure 3-6. Housing Density Distribution in the Dougherty Valley Planning Area



Figure 3-7.  
Community Framework and  
Housing Product Allocations  
in the Dougherty Valley  
Planning Area



## LEGEND

SF Single Family

MF Multiple Family

C Commercial



0 1,200 2,400  
FEET

Source: PBR 1992

- adequate ROW along Dougherty Road, Bollinger Canyon Road, Windemere Parkway, and East Valley Road to allow for installation of bus stops (Figure 3-8);
- adequate ROW along Bollinger Canyon and Dougherty Roads for potential future extension of light rail transit tracks, and a transit center (at the village center) for eventual connection to the proposed East Dublin/Pleasanton Bay Area Rapid Transit (BART) station (Figure 3-9);
- adequate ROW for one 300-space, three 50-space and three shared use park-and-ride lots along Bollinger Canyon and Dougherty Roads; and
- an interconnected network of bicycle lanes, off-street trails, and pedestrian paths along the open space and creek corridors and street ROW.

**Open Space and Conservation Element.** The type and size of open space areas and parks and recreation facilities are summarized in Table 3-4. The following is a summary of the major policy directions of this element:

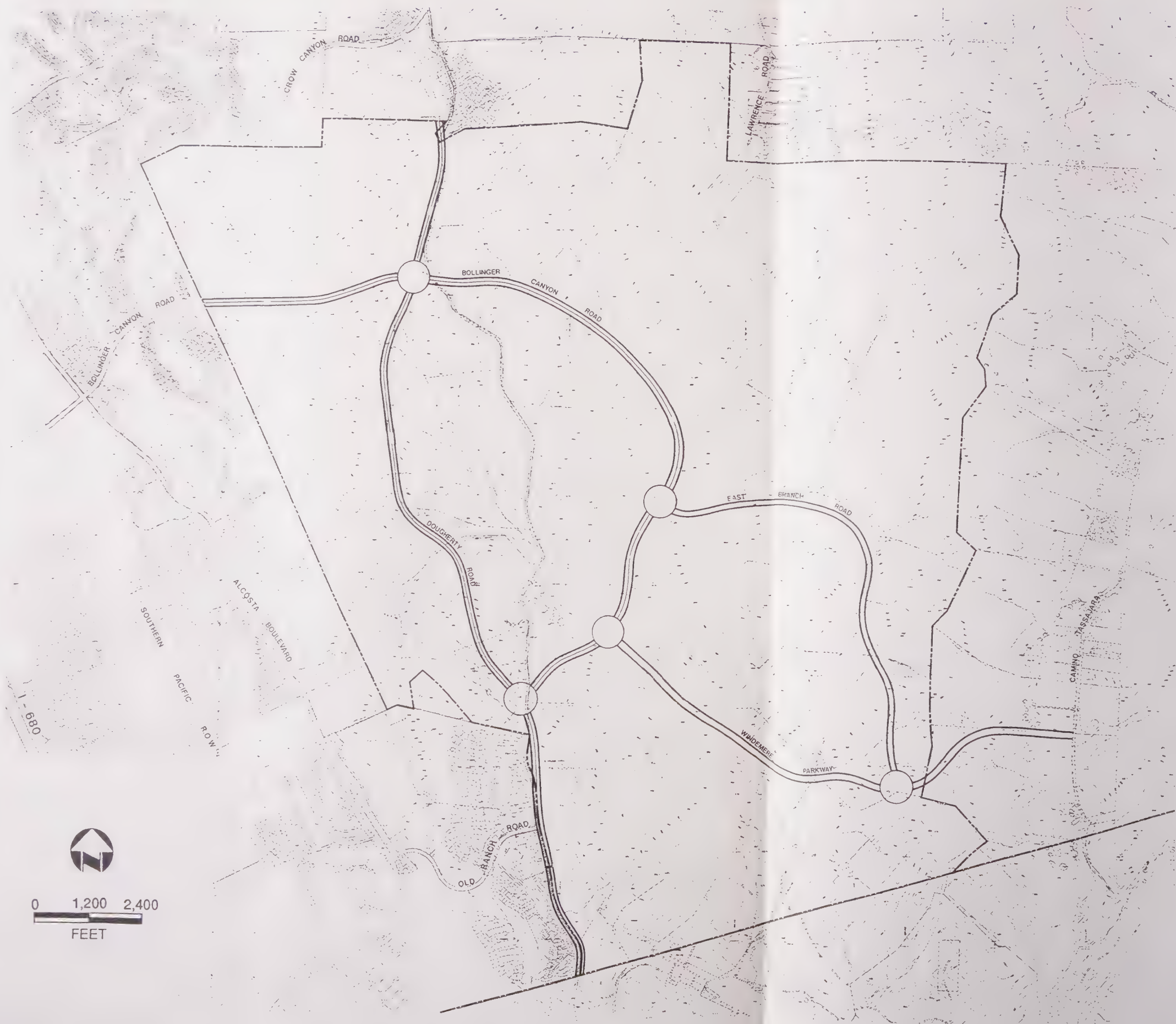
- creation of an open space system that traverses the major perimeter ridges of the planning area and establishes a continuous network of open space linking to the regional open space system;
- requiring at least 55% of both the Shapell and Windemere properties to be parks and open space lands;
- generally providing for retention of the perimeter ridges as open and unobstructed features with minimum development for recreational uses only;
- provision of staging areas for the ridgetop trail system as key locations for trail access, parking, maintenance and interpretive signs, and joint use as park-and-ride facilities;
- establishment of a 217-acre public creek corridor system that accommodates active and passive recreational facilities and provides access between residential neighborhoods and community facilities;
- improvements to creeks within the planning area ranging from re-creation to enhancement; and
- protection of significant trees in areas planned as open space or replanting of trees at a ratio of 10:1.

**Community Facilities Element.** Table 3-5 presents the number and size of all community facilities proposed by the DVSP. Figure 3-10 illustrates the proposed location of these facilities. The following is a summary of the major policy directions of this element:




- designation sites for a community center, senior center, library, and police substation adjacent to the village center;



Figure 3-8.  
Circulation for the Dougherty  
Valley Planning Area



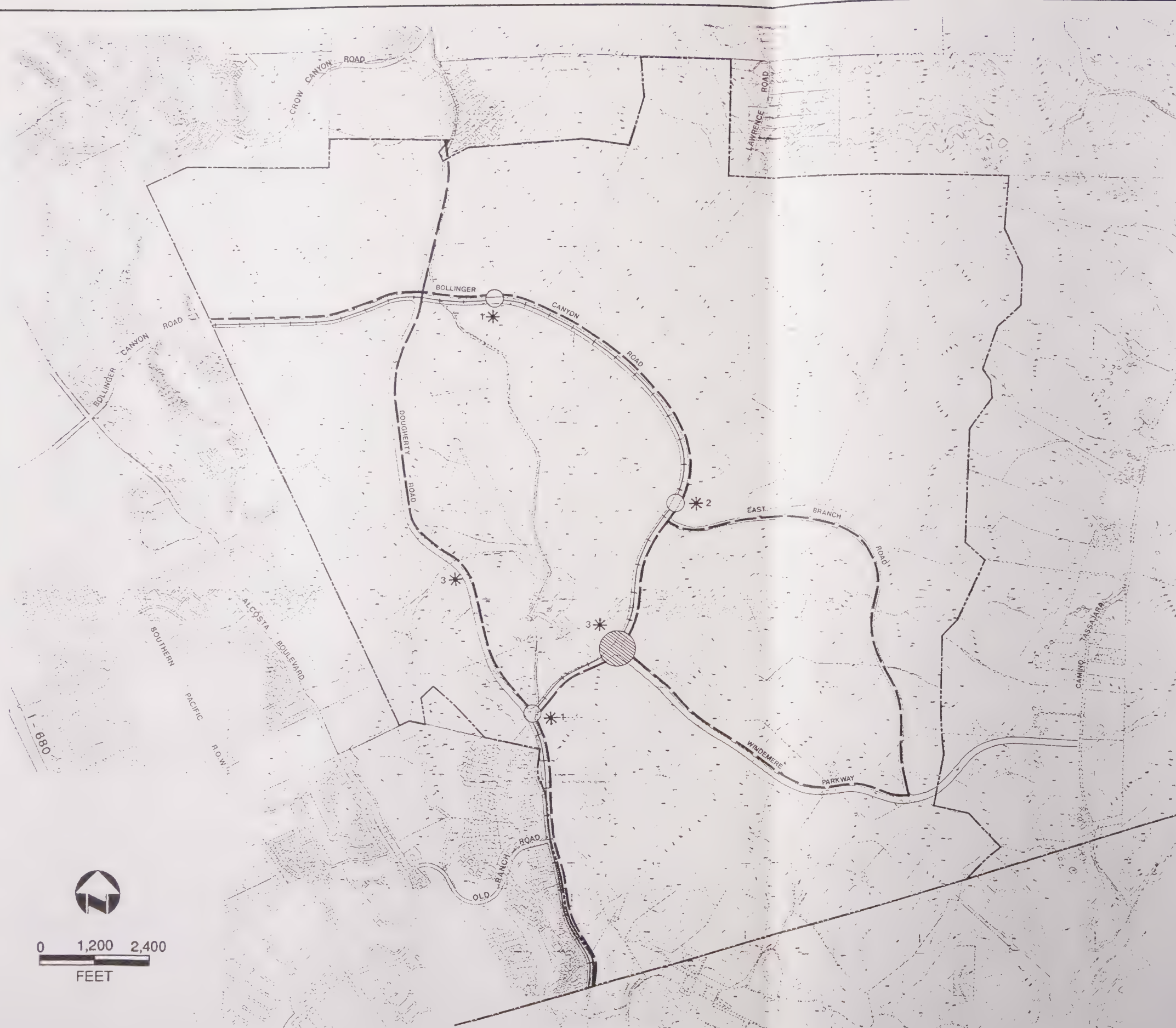
## LEGEND

-  MAJOR ARTERIALS
-  ARTERIALS
-  MAJOR SIGNALIZED INTERSECTIONS

Note: Collector and local streets are not shown.



Figure 3-9.  
Transit Facilities for the  
Dougherty Valley  
Planning Area



# LEGEND






-  POTENTIAL RAIL ROUTE
-  MAJOR BUS ROUTES
-  TRANSIT CENTER
-  POTENTIAL RAIL STATION
-  PARK AND RIDE  
1/300 SPACES 2/50 SPACES 3/SHARED USE







Table 3-4. Dougherty Valley Open Space/Parks  
and Recreation (Excluding Camp Parks)

Land Use	Gross Acres per Landowner		Total Acres
	Windemere	Shapell	
Golf course	0	200	200
Creek corridors	70	147	217
Staging area	6	3	9
Community park	15	57	72
Neighborhood park <sup>a</sup>	20	20	40
Neighborhood parks at school sites	40 <sup>b</sup>	15 <sup>c</sup>	55
Pocket parks <sup>d</sup>	11	8	19
Tot lots <sup>e</sup>	3	3	6
Unimproved open space (not including slopes internal to residential areas)	1,054	979	2,033
Improved internal slope areas (6% of total gross acres)	145±	162±	307
Total areas of open space/parks and recreation	1,364	1,594	2,958
Total acres per land use plan	2,416	2,708	5,124
Percentage of open space	57	59	58

<sup>a</sup> See Figure 17 of the DVSP. Community Facilities for Neighborhood Parks.

<sup>b</sup> These 40 acres are comprised of two neighborhood parks at elementary school sites, each at 5 acres; one at middle school site at 5 acres; and one at a high school site at 25 acres.

<sup>c</sup> These 15 acres are comprised of two neighborhood parks at elementary school sites, each at 5 acres; and one at middle school site at 5 acres.

<sup>d</sup> See Figure 21 of the DVSP. Park and Trail Concept regarding pocket parks.

<sup>e</sup> See Table 5 of the DVSP. Park Allocations regarding tot lots.

Source: PBR 1992.

Table 3-5. Gross Acreage of Proposed Community Facility  
Sites in the Dougherty Valley Draft Specific Plan









Community Facility	Quantity	Gross Acres per Facility	Total Gross Acres
Schools*			
Elementary schools	4	5	20
Middle schools	2	10	20
High schools	1	25	25
Community college	1	150	<u>150</u>
Total schools acreage			215
Parks			
Pocket parks	12	1-4	12-48
Neighborhood parks	8	5-10	40-80
Neighborhood parks at school sites			
Elementary schools	4	5	20
Middle schools	2	5	10
High schools	1	25	25
Community parks	1	72	72
Creek corridors	--	217	217
Staging areas	2	3-6	<u>9</u>
Total parks acreage			405-481
Public/semi-public			
Religious institutions	4	3-6	16
Golf course	1	200	<u>200</u>
Total public/semi-public acreage			216
Civic facilities			
Library	1	<1	<1
Community center	1	<1	<1
Senior center	1	<1	<1
Fire station	1	1	1
Police substation	1	<1	<u>&lt;1</u>
Total civic facilities acreage			3-5

\* Schools does not include neighborhood parks acreage at school sites (see Table 3-4).

Source: PBR 1992

Figure 3-10.  
Community Facilities for the  
Dougherty Valley Planning  
Area

## LEGEND

-  **VILLAGE CENTER**  
LIBRARY, COMMUNITY CENTER,  
SENIOR CENTER, FIRE STATION, SHERIFF SUBSTATION
-  **COMMUNITY PARK**
-  **LINEAR PARK**
-  **SCHOOL/PARK**
-  **NEIGHBORHOOD PARK**
-  **GOLF COURSE**
-  **POTENTIAL RELIGIOUS FACILITIES**
-  **STAGING AREA**







- designation of a 1-acre site in the village center for a fire station to serve the San Ramon Valley Fire Protection District (SRVFPD);
- designation of sites for four additional elementary schools, two middle schools, and one high school to serve the San Ramon Valley Unified School District (SRVUSD);
- provision for joint school/park facilities;
- provision for childcare facilities in the proposed elementary schools;
- designation of a 72-acre community park site; eight 5- to 10-acre neighborhood park sites in residential neighborhoods, adjacent to proposed schools or along the proposed creek corridor; and twelve 1- to 4-acre pocket parks; and
- designation of four 3- to 6-acre sites for religious institutions.

**Utilities Element.** This element addresses the provision of the following public services and facilities to the planning area: domestic water, reclaimed water, sanitary sewer, stormwater drainage, electricity, natural gas, telephone, and fire protection. Each of these proposed services and facilities is described below.

**Domestic Water.** The northwest portion of the planning area is within the service area of the East Bay Municipal Utilities District (EBMUD). The DVSP proposes annexing to EBMUD areas within the planning area that are currently outside the EBMUD and DSRSD service areas. The DVSP contemplates that EBMUD will provide domestic water service to the entire planning area. EBMUD water is treated at the Walnut Creek Treatment Plant. Figure 3-11 shows the proposed water distribution facilities, storage reservoir, and pressure zones. The DVSP also encourages implementing water conservation measures, such as use of drought-resistant plantings; installing low-flow toilets, faucets, and showerheads; avoiding turf; using reclaimed water for irrigation; and using golf courses as water retention basins. The EIR also discusses the possibility of water service by the DSRSD.

**Reclaimed Water.** The DVSP calls for the provision of a reclaimed water distribution system to irrigate parks, school grounds, landscaping strips, and golf courses within the planning area. Figure 3-12 presents the proposed gravity flow distribution system; although designed as a gravity flow system, specific development sites may require lift stations.

Reclaimed water to serve Dougherty Valley could be provided by EBMUD or the DSRSD. These agencies recently signed an MOU to study the feasibility of irrigating the I-680 corridor with reclaimed water. This effort may provide the necessary channels to initiate a water reclamation program for the Dougherty Valley.

**Sanitary Sewer.** The DVSP identifies the Central Contra Costa Sanitary District (Central San) located in Concord as the preferred provider for Dougherty Valley. Central San treatment facilities are located northeast of the I-680/Highway 4 interchange

in Martinez. Effluent is disposed into Suisun Bay. Figure 3-13 illustrates the proposed wastewater collection system, including the location of proposed pumping stations. Wastewater generated by the planning area would be conveyed to the southwest corner of the planning area, where it would be pumped and treated by Central San.

It would also be possible for the Tri-Valley Wastewater Authority (TWA) to serve the planning area through DSRSD collection facilities that would convey wastewater through TWA facilities to a Central San treatment facility for discharge into Suisun Bay. This possibility is discussed below.

**Stormwater Drainage.** The DVSP's stormwater drainage plan proposes to convey drainage from developed areas to streets and gutters or grassy swales, through underground culverts, and into major creeks. Stormwater drainage would be detained in onsite detention basins to prevent an increase in postproject offsite drainage. The basins would be designed to maintain stormwater flows on Alamo Creek at the Contra Costa County/Alameda County line to 4,670 cubic feet per second (cfs) during peak runoff conditions in a 100-year storm. Stormwaters conveyed by Alamo Creek would be conveyed to Alamo Canal, an Alameda County flood control channel system. Ultimately, the runoff would be conveyed to Alameda Creek, which drains into San Francisco Bay. Detention basins and creek channels would be maintained by the Contra Costa County Flood Control District.

**Electricity.** PG&E would provide electricity to the planning area from the San Ramon substation located west of Dougherty Valley near Alcosta Boulevard.

PG&E owns and operates transmission and distribution lines in the planning area. Two 230-kilovolt (kV) lines run north to south, one 21-kV line follows the 230-kV line, another 21-kV line follows Dougherty Road, and a third 21-kV line runs east to west across the southern half of the planning area. The DVSP proposes to place the existing 21-kV lines underground. PG&E staff stated that it is infeasible to place the 230-kV line underground because of maintenance considerations.

**Natural Gas.** PG&E would provide natural gas service to the planning area from the Mission Division, south of Dougherty Valley, by extending a 12-inch feeder line north through the planning area, possibly linking it with existing lines in the Blackhawk area to the north. Six-inch distribution lines would provide gas service throughout the planning area.

**Telephone.** Pacific Bell would provide telephone service to the planning area by extending conventional copper cable from the San Ramon Central Office (off Alcosta Boulevard) to the planning areas south of Bollinger Canyon Road, and from the Tassajara Central Office (north of Camino Tassajara) to the planning areas to the north.

**Fire Protection.** The SRVFPD is proposed to provide fire protection service and paramedic ambulance service to the planning area. Dougherty Valley is located within the boundaries of this district, which also includes the Town of Danville and the unincorporated Alamo, Diablo, Blackhawk, and Tassajara areas. The district is served by seven (with an eighth being built) fire stations and a staff of 180, providing response times of 5 minutes or less.



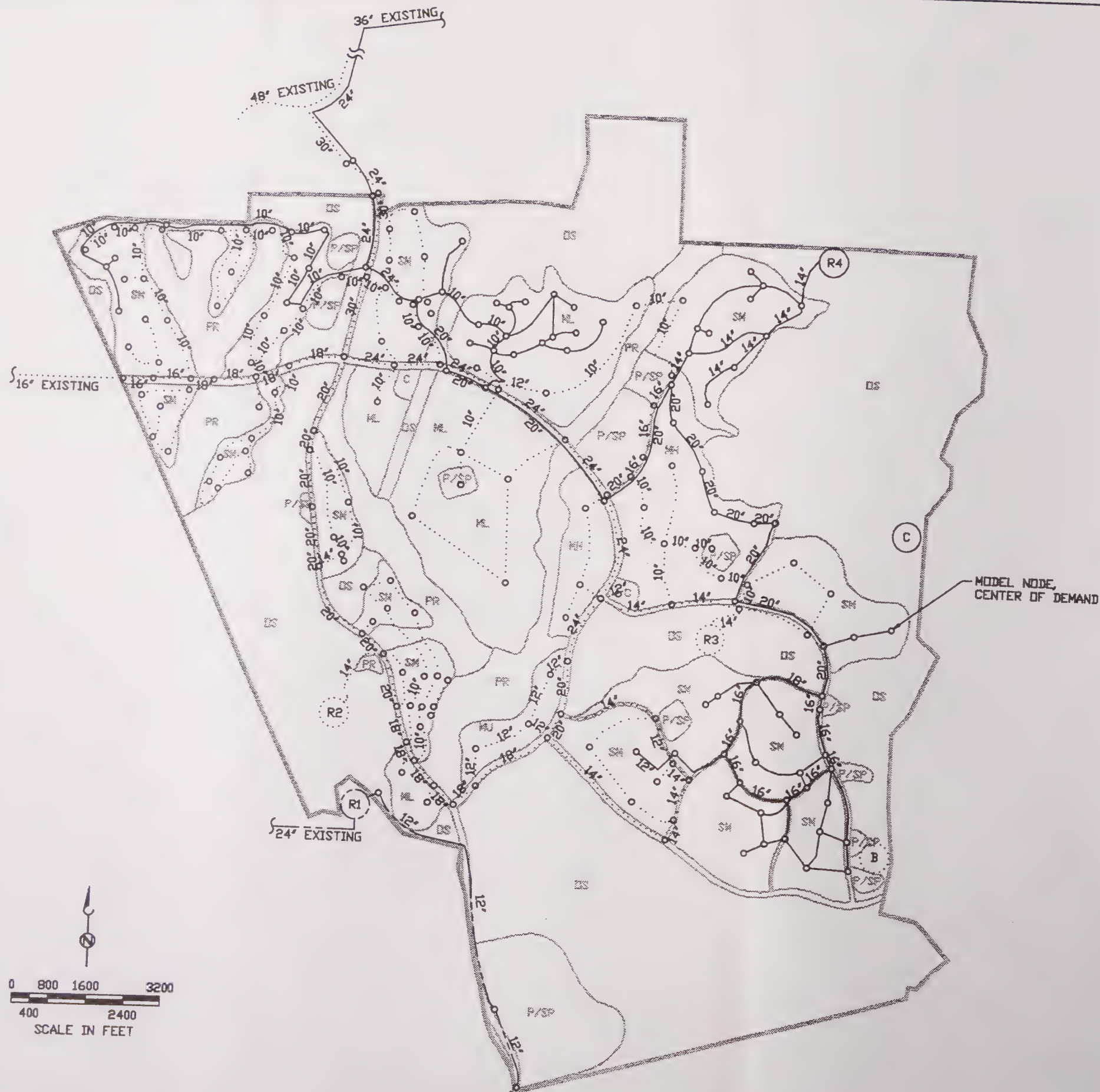


Figure 3-11.  
Proposed Water Distribution  
Facilities for the Dougherty  
Valley Planning Area

LEGEND:

- 18' — ZONE A PIPELINE WITH PIPE DIAMETER IN INCHES
- 18' - - - ZONE B PIPELINE WITH PIPE DIAMETER IN INCHES
- 18' — ZONE C PIPELINE WITH PIPE DIAMETER IN INCHES
- 24' EXISTING - - - EXISTING WATER MAIN WITH PIPE DIAMETER IN INCHES
- (R4) RESERVOIR WITH RESERVOIR NUMBER
- (B) ALTERNATE RESERVOIR LOCATION WITH PRESSURE ZONE LETTER

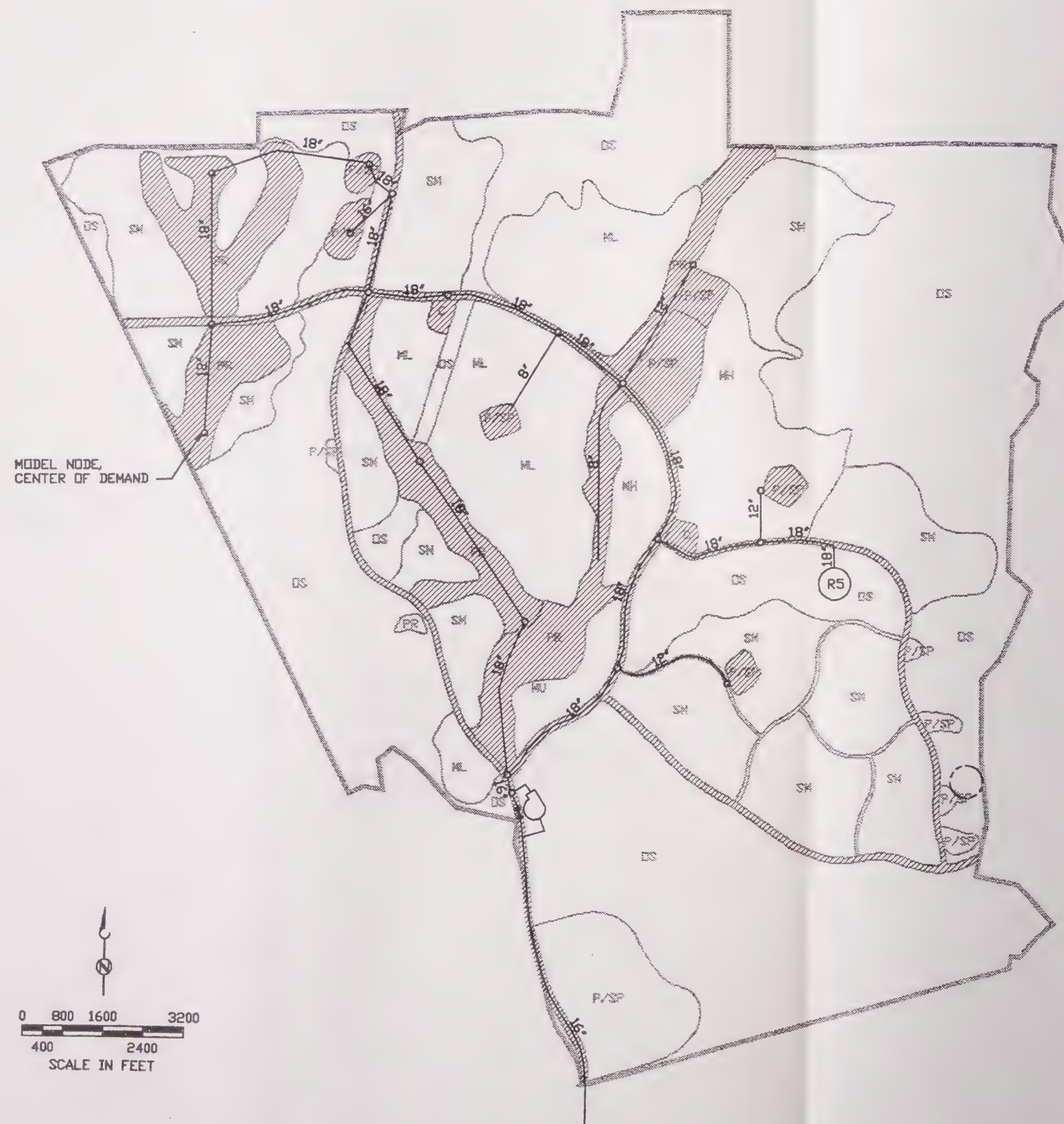
NOTES:

1. PIPES ARE 8 INCHES IN DIAMETER UNLESS OTHERWISE NOTED.
2. SERVICE ELEVATIONS FOR ZONE A ARE BETWEEN 340 AND 540 FEET.
3. SERVICE ELEVATIONS FOR ZONE B ARE BETWEEN 450 AND 650 FEET.
4. SERVICE ELEVATIONS FOR ZONE C ARE BETWEEN 650 AND 850 FEET.
5. FACILITIES DESIGN BASED ON LAND USE AND GRADING PLAN DEVELOPED BY PBR FEBRUARY 13, 1992.





Figure 3-12.  
Proposed Reclaimed Water  
Distribution Facilities for the  
Dougherty Valley Planning  
Area



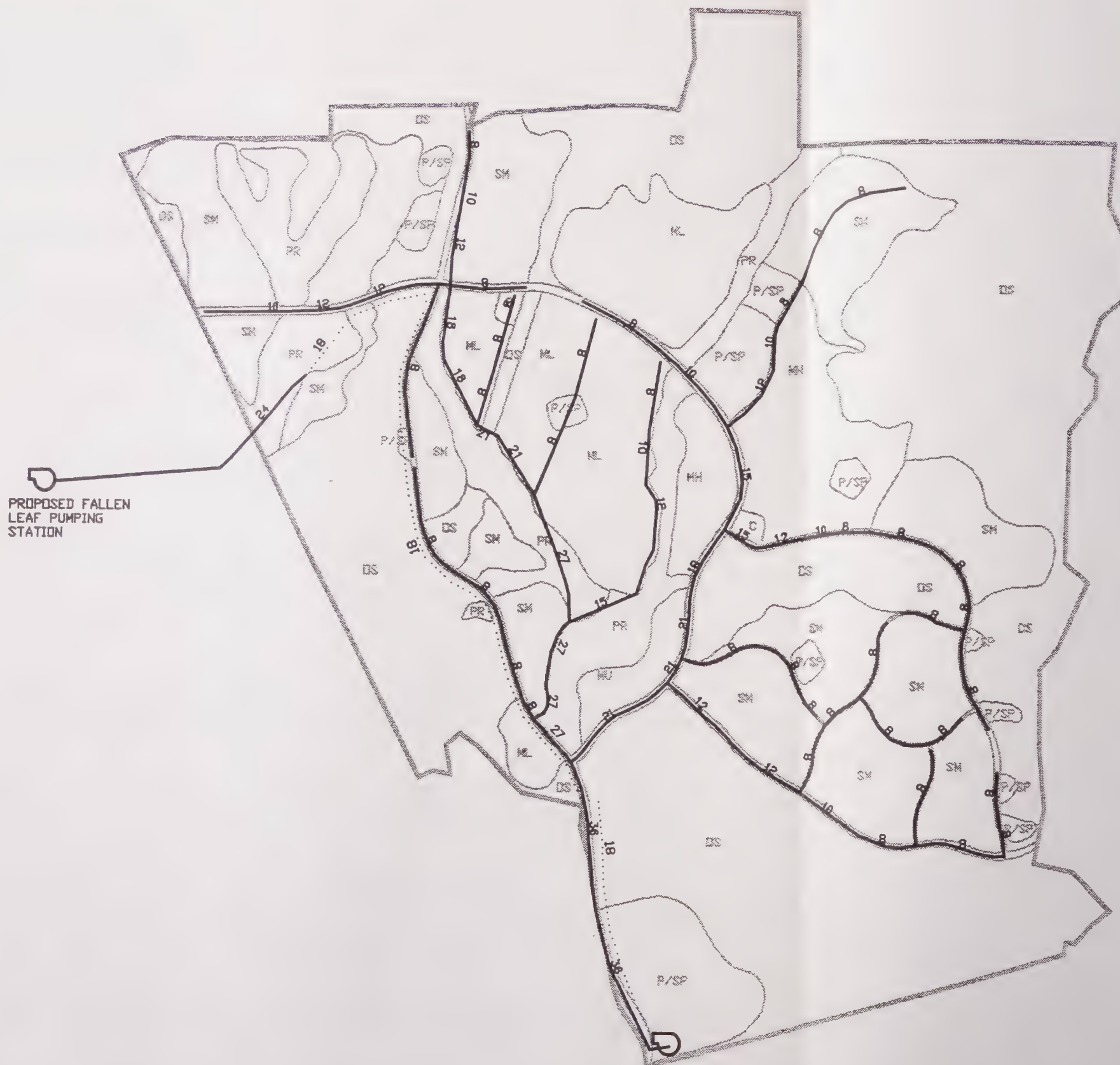
LEGEND:

- 18" — RECYCLED WATER DISTRIBUTION MAIN  
WITH PIPE DIAMETER IN INCHES
- (R5) RECYCLED WATER RESERVOIR  
WITH RESERVOIR NUMBER
- BOOSTER PUMP
- GATE VALVE
- ALTERNATE RESERVOIR LOCATION
- RECYCLED WATER SERVICE AREA

NOTES:

1. SERVICE ELEVATIONS FOR THE RECYCLED WATER SYSTEM ARE 400 TO 620 FEET.
2. FACILITIES DESIGN BASED ON LAND USE AND GRADING PLAN DEVELOPED BY PBR FEBRUARY 13, 1992.
3. RECYCLED WATER MAINS SHOWN ON THIS FIGURE ARE THE TRUNK FACILITIES WHICH WERE MODELED.  
UPON CONSTRUCTION OF THE RECYCLED WATER SYSTEM, SMALLER DISTRIBUTION PIPES WILL CARRY RECYCLED WATER INTO PUBLIC DEMAND AREAS AND ALONG MAJOR RESIDENTIAL STREET MEDIANS.





PROPOSED FALLEN  
LEAF PUMPING  
STATION

Figure 3-13.  
Proposed Wastewater  
Collection Facilities for the  
Dougherty Valley Planning  
Area

LEGEND:

- 8 GRAVITY SEWER AND DIAMETER IN INCHES
- 18 FORCE MAIN AND DIAMETER IN INCHES
- PUMP STATION

NOTES:

1. FACILITIES PLAN BASED ON LAND USE AND GRADING PLAN DEVELOPED BY PBR FEBRUARY 13, 1992.
2. ADDITIONAL OR ALTERNATE BOOSTER PUMPING STATIONS MAY BE REQUIRED DEPENDING ON ACTUAL CONSTRUCTION PHASING AND ON WHETHER OR NOT THE PLANNED COMMUNITY COLLEGE IS BUILT.







At least one additional fire station and a comprehensive fire and emergency medical delivery system would be required to serve the planning area. Fire hazard reduction measures, including management of open space and urban interface areas to reduce fuel (vegetation) volumes, are proposed by the specific plan. Figure 3-10 shows the location of the proposed fire station.

**Community Design Element.** The following is a summary of the major policy directions of the community design element:

- a clear organizational framework using form-giving elements such as the open space areas, neighborhoods, circulation elements, and public gathering places;
- an open space framework as part of a larger, regional system, maintaining its natural qualities through minimum impact facility siting, signage, and interpretative facilities;
- retaining the main branches of Alamo Creek as major community organizing elements by developing substantial landscape improvements, trails, and parks;
- providing for an internal park system that links the open space areas, creek corridors and neighborhood and pocket parks, and the sidewalk and off-street trail system;
- a village center that is convenient and accessible to all modes of transportation; reflects a distinctive local character, its natural setting and relationship to the adjacent community park; and accommodates greater building intensity and housing density than is currently planned without diminishing the value of pedestrian areas;
- two neighborhood commercial sites that are compatible with adjacent residential uses through landscaped edges and careful siting of mechanical equipment and storage areas and placement of architecturally compatible buildings to form the street corner; and
- neighborhoods that are well defined by open space creek corridors or major streets, for which the neighborhood school or park is the identifying feature.

The policies and guidelines of the community design element will be implemented by a community design handbook that will provide design review procedures and siting, landscape, and architectural guidelines for Dougherty Valley. The handbook will expand on the broad policies of the DVSP to address the specific character of, among other things, parks and open spaces, streets, and public gathering places or facilities.

**Growth Management Element.** This element includes the major policy directions relating to the performance standards associated with the County's growth management program.

**Relationship to the General Plan.** This element addresses the proposed Dougherty Valley General Plan Amendment (GPA) being processed concurrently with the specific plan. It compares a sample of the goals of the specific plan with those of the County general plan by element as modified by the GPA.

**Implementation.** This element describes the County processing actions and other implementing measures that would occur to carry out the development of the planning area under the specific plan. These include the project entitlements listed above, as well as the following:

- erosion control plans to be approved by the County as part of the final development plans or tentative maps (see "Other Project Entitlements" below);
- provision of affordable housing that may help the County, Town of Danville, and City of San Ramon to achieve fair share allocations;
- long-term management of facilities and services;
- wetland delineation and related permits would be submitted to the Corps and DFG and a no- net-loss mitigation plan would be provided;
- land transfer of major public open space to the EBRPD would be accomplished;
- Windemere Parkway land transfer;
- community facilities;
- financing plan; and
- phasing.

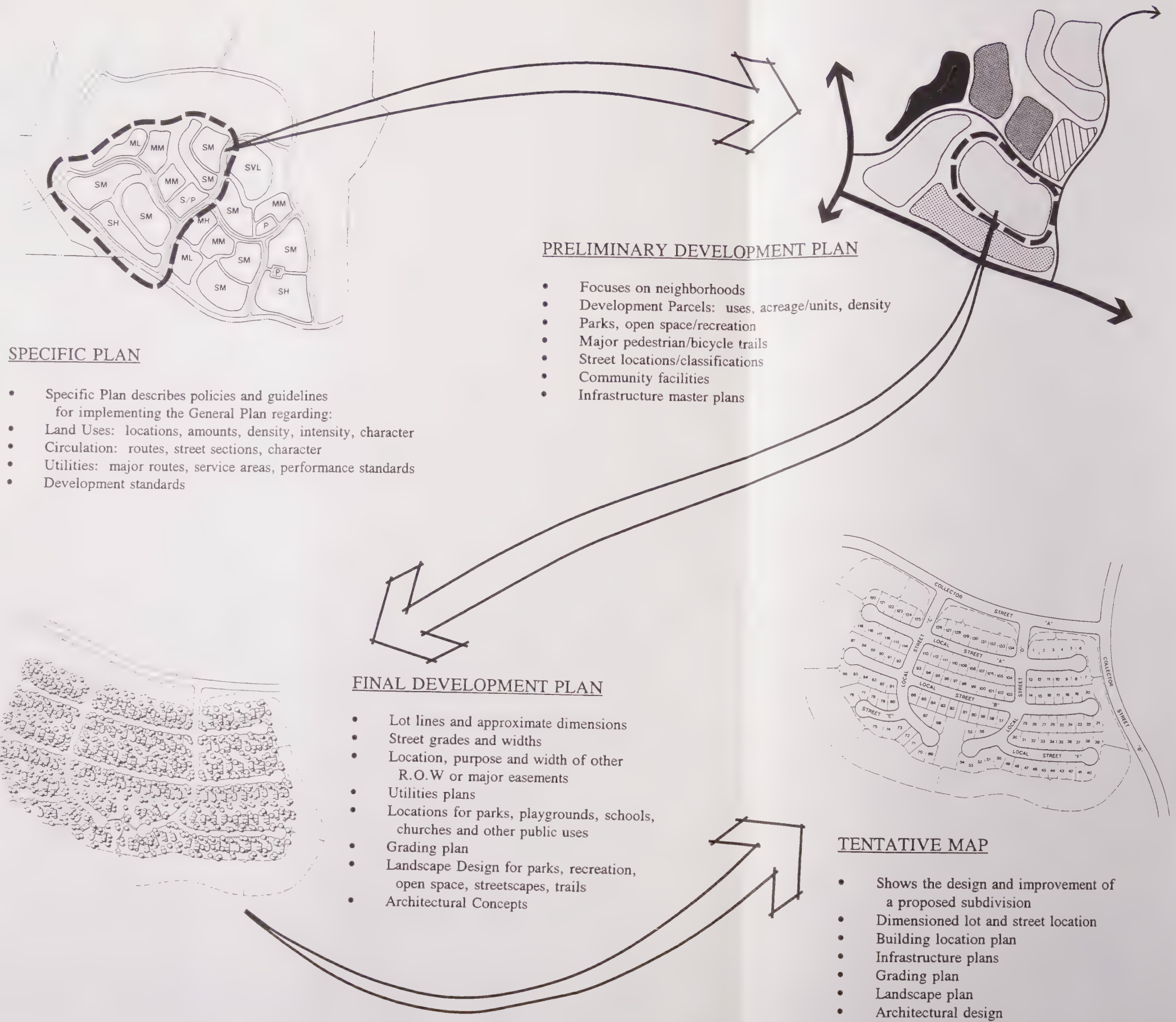
### **Other Project Entitlements**

In addition to adopting the specific plan and GPA described above, several other actions or entitlements may be considered part of the project. These actions are listed below by the responsible agency.

#### **Contra Costa County**

The County development process involves a number of entitlements that are expected to proceed in the sequence shown in Figure 3-14. This figure indicates the increasing levels of detail that are involved in the planning process that would be used to implement the specific plan.

Figure 3-14.  
Development Entitlements  
Sequence in Contra Costa  
County









**Development Agreements.** The project proponents will separately enter into development agreements with the County pursuant to Government Code Section 65864 et seq. These agreements would be designed to establish procedures governing, and vest the project proponents' rights regarding, how the project approvals to be granted by the County (e.g., GPA, DVSP, Rezoning and Preliminary Development Plan) would be carried out. As such, the agreements themselves would not result in additional environmental impacts.

The development agreements may include the following:

- provisions specifying permitted uses, density or intensity of use, and maximum height and size of proposed buildings as specified in the other project approvals;
- provisions specifying the rules, regulations, and official policies applicable to the project;
- provisions for the preservation or dedication of land for public purposes, such as parks, open space, and roadways and other public facilities;
- provisions regarding the phasing and funding of various public improvements through fees, special assessment districts, reimbursement agreements, and other items (which would be designed to ensure that the project satisfies growth management standards); and
- provisions regarding the issuance of additional project approvals, such as tentative subdivision maps and phased final maps.

**Local Agency Formation Commission Application for Reorganization.** After adopting the specific plan, the County will initiate a request that the Contra Costa County Local Agency Formation Commission (LAFCO) modify urban service district spheres of influence and service boundaries needed to extend urban services to the planning area. This request will be accompanied by an augmented plan for providing services.

**Rezoning.** The Windemere and Shapell properties would be rezoned by the County to the Planned Unit District (P-1) zoning category. This rezoning would be implemented by:

- preliminary development plans - to illustrate for each property, including its neighborhoods and village center, more detailed plans for landscaping, grading, utilities, architectural forms, and phasing (Figure 3-14); and
- final development plans - to illustrate implemented specific plan requirements for, among other things, community facilities, open space management and creek restoration plans, and affordable housing.

**Tentative and Final Maps.** Each landowner is required to submit a tentative subdivision map to create parcels and provide for infrastructure in conformance with the specific plan, development agreement, and conditions of approval. Multiple final subdivision

maps may be filed on phases of the development when the above conditions have been met and prior to issuance of grading or building permits by the County (Figure 3-14). Tentative maps may be vesting tentative maps.

**Geological Hazard Abatement District.** The County may establish a special district to fund any needed remedial grading work necessary to address any slope instability in previously graded areas on the Windemere property. A Geological Hazard Abatement District (GHAD) has already been formed on the Shapell property (Koch pers. comm.).

**Construction of Windemere Parkway.** The County or the project proponents will build the Windemere Parkway extension from the specific plan area to Camino Tassajara.

**Construction of Infrastructure Improvements.** The County and local service and utility agencies shall ensure construction of pipelines and other facilities necessary to serve the project area.

**Local Agency Formation Commissions.** The Contra Costa County LAFCO would modify sewer, water, municipal, and other urban service districts' spheres of influence and perform a boundary reorganization to place the development portion of the area within urban service district. Urban service districts would provide facilities to the area, as called for in the DVSP.

#### **California Department of Fish and Game**

DFG approves Streambed Alteration Agreement 1601 for construction or restoration activities within planning area creekbeds.

#### **Regional Water Quality Control Board**

The Regional Water Quality Control Board (RWQCB) issues a National Pollution Discharge Elimination System (NPDES) permit for stormwater discharge.

#### **U.S. Army Corps of Engineers**

The Corps issues a Federal Clean Water Act Section 404 permit for discharge of fill into jurisdictional wetlands and other waters of the United States;

#### **East Bay Regional Park District**

EBRPD may accept open space.

Other approvals may be required by Federal, State or local agencies, or special districts needed to implement the project. This EIR is expected to serve as the environmental document for all of the above entitlements.

## **PROJECT PHASING AND CONSTRUCTION SCHEDULE**

The general plan amendment and specific plan approval is expected to occur by the end of 1992. Submittal and approval of first phase tentative maps could occur during 1992 or 1993. Construction engineering for the first phase residential tracts and related infrastructure would take approximately 18 months to mid-1995. An additional 18 months would be required to construct the first phase. Timing of subsequent phases would depend on local housing market conditions and overall economic conditions, but buildout of the entire planning area would occur over approximately 15 years in five phases and could be complete by 2010. This EIR generally analyzes only the impacts at buildout in 2010.

### **Project Benefits**

The project proponents expect the project to have the following beneficial environmental impacts:

- provide approximately 2,750 units of affordable housing;
- restore creek corridors and enhance valley oak and other habitats in the planning area;
- improve the ability to control floods, including the 100-year flood;
- result in a beneficial impact on grasslands by reducing cattle grazing in the planning area,
- enhance the viability of a light rail system and other transit improvements, resulting in improved air quality and traffic conditions;
- result in improved traffic conditions on certain roadways through development of the planning area and associated conditions of approval;
- make undeveloped lands in the planning area accessible to the public through the project's system of open space lands, and provide a trail system and other amenities that will maximize public enjoyment of the resource; and
- result in an improved jobs/housing balance, with resultant improvements in traffic circulation and air quality, through the provision of approximately 11,000 residential units in close proximity to major employment centers (Jacobson pers. comm.).



## **ALTERNATIVES TO THE PROJECT**

### **Dougherty Valley Planning Area Alternatives**

#### **No-Project Alternative**

The No-Project Alternative consists of leaving the planning area undeveloped. The land would remain under County jurisdiction and the current general plan land use designation, ULL location, and zoning standards would remain in effect, as they relate to the private properties. The Camp Parks portion of the planning area would continue to be used for military training purposes. The private ranch lands could be subdivided into as many as 80 very large lots, but this type of development is considered economically infeasible and is not anticipated. The private land is expected to be used for grazing and dryland farming activities for the foreseeable future. This is expected to leave the planning area essentially physically unchanged except for the continued adverse environmental impacts associated with current agricultural management practices and the continued deterioration of the ranch buildings.

#### **Lower Density Alternative**

This project alternative provides for development of the planning area at much lower residential densities than the proposed project around the perimeter, and somewhat lower or essentially the same residential densities in the central part of the planning area (Figure 3-15).

This lower density alternative would result in a maximum of 5,500 dwelling units on 2,254 residential acres (Table 3-6). The physical distribution of developed areas and open space areas would be essentially the same as that associated with the proposed project. The infrastructure necessary to support this alternative would be essentially the same, but smaller infrastructure capacities would support the project.

#### **Moderate-Density Alternative**

The Moderate-Density Alternative provides for development of the planning area at generally lower residential densities than the proposed project around the perimeter, with essentially the same residential densities in the central part of the planning area (Figure 3-16).

This alternative would result in a maximum of 9,500 dwelling units on 2,254 residential acres (Table 3-6). The physical distribution of developed areas and open space areas would be essentially the same as that associated with the proposed project. In addition, the infrastructure necessary to support this alternative would be essentially the same, but somewhat smaller infrastructure capacities would support the project.



Figure 3-15.  
Lower Density Alternative  
Land Use Scenario  
(5,500 Dwelling Units)

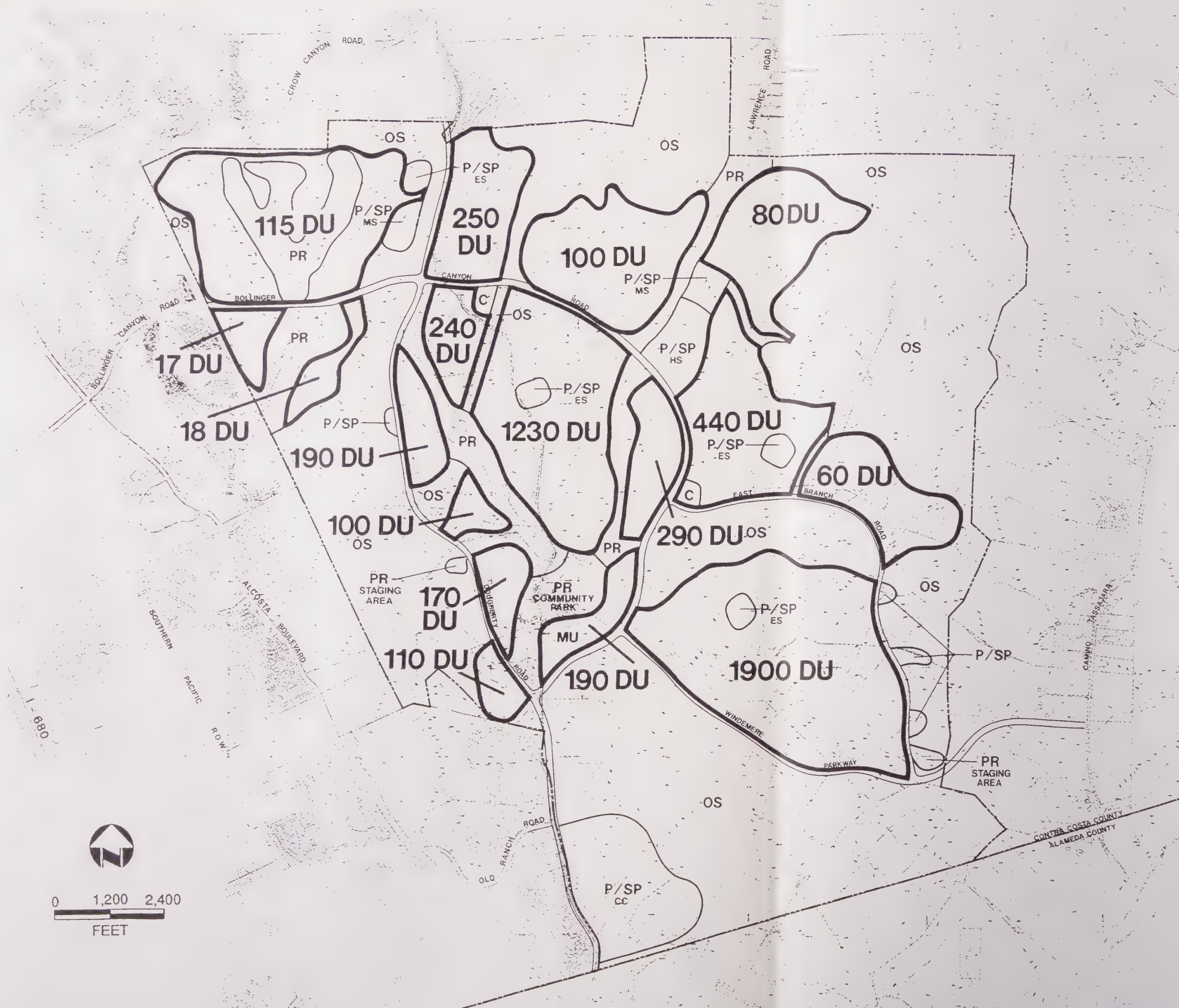






Figure 3-16.  
Moderate Density Alternative  
Land Use Scenario  
(9,500 Dwelling Units)

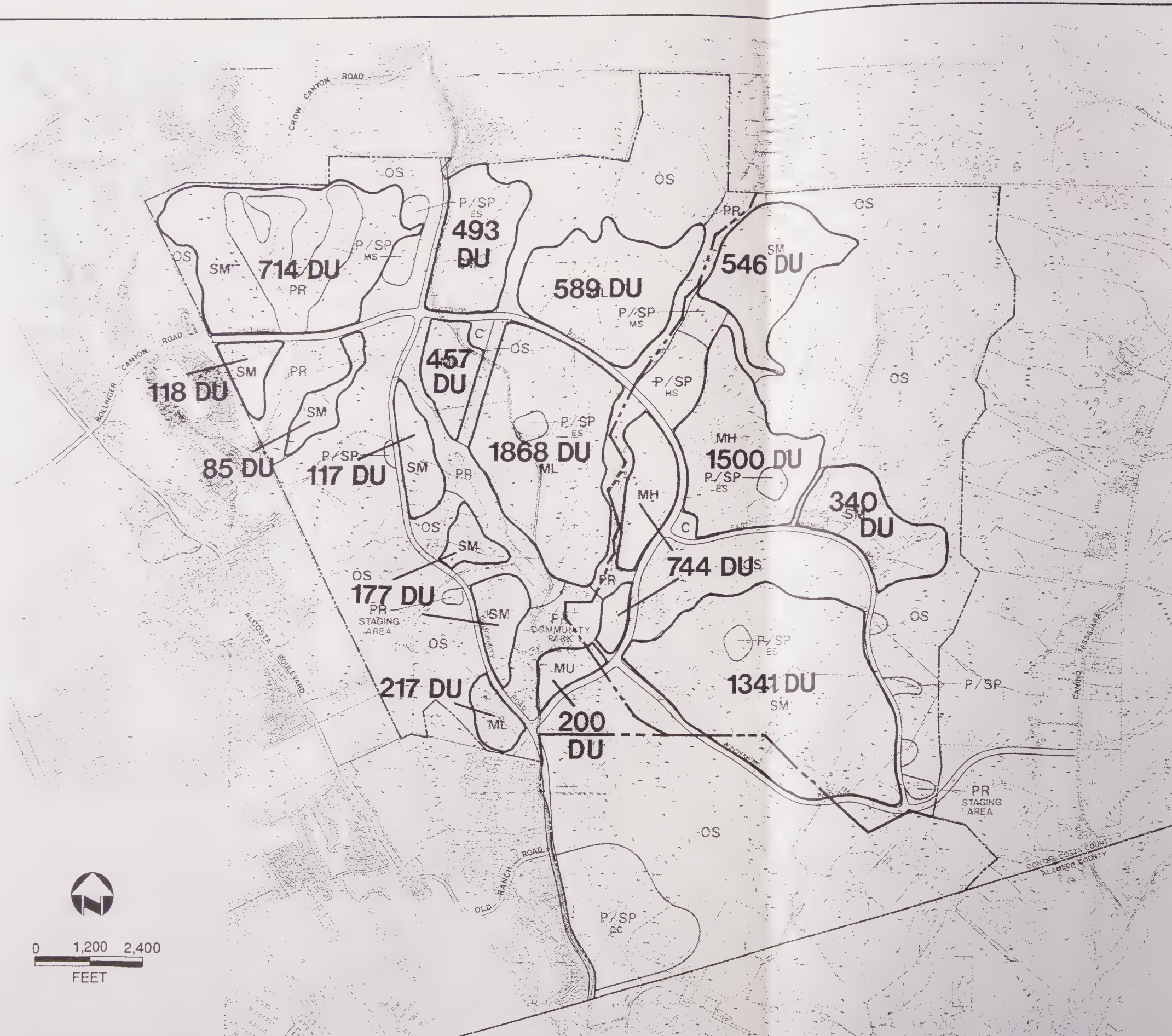






Table 3-6. Comparison of Project Alternatives

Alternatives	Gross Acres	Residential Acres <sup>a</sup>	Open Space Acres <sup>b</sup>	Maximum Dwelling Units
Proposed Project (Dougherty Valley Specific Plan)	5,995	2,254	3,236	11,000
Lower Density Alternative	5,995	2,254	3,236	5,500
Moderate Density Alternative	5,995	2,254	3,236	9,500
Concentrated Development Alternative	5,995	1,840	3,692	11,000
Off-site Alternative (East Dublin planning area)	7,400	2,430	4,100	11,000

<sup>a</sup> Residential acres does not include acreage planned for non-residential, public-semi-public, or major road uses. These uses total approximately 489 acres for on-site development alternatives.

<sup>b</sup> Open space acres includes community park, golf course, creek corridors, staging areas, and unimproved open space (neighborhood parks, pocket parks and tot lots are included in residential acreage)

<sup>c</sup> The offsite alternative includes the project plus additional uses such as "business park" and "hospital and rehabilitation".

Note: See Tables 3-1 through 3-5 for more detailed acreage information by land use for the proposed project.

## **Concentrated Development Alternative**

The Concentrated Development Alternative provides for development of the planning area with the same maximum number of residential units as the proposed project, but at a generally higher residential density around the center of the planning area (Figure 3-17).

This higher-density alternative would result in a maximum of 11,000 dwelling units on 1,840 residential acres (Table 3-6). The higher-density residential development pattern would concentrate more dwelling units near the main transportation corridors and enlarge the amount of open space around the perimeter of the planning area. Physical impacts on the planning area would be limited to a smaller area than those associated with either the proposed project or the lower-density alternative. Infrastructure to support this alternative would be essentially the same as that needed for the project alternative.

## **Offsite Development Alternative**

### **East Dublin GPA Site**

The Offsite Development Alternative would involve development of the project in the East Dublin area in unincorporated Alameda County (Figure 3-18). This alternative site is located 2 miles southeast of Dougherty Valley, adjacent to and north of I-580, east of Camp Parks, and west of Collier Canyon Road. This site was selected because it represents a large, contiguous planning area that could physically accommodate a project the size of that proposed by the DVSP. The East Dublin site is being studied for possible annexation by the City of Dublin under a proposed general plan amendment and specific plan. A draft EIR is under preparation on this project but has not yet been released for public review.

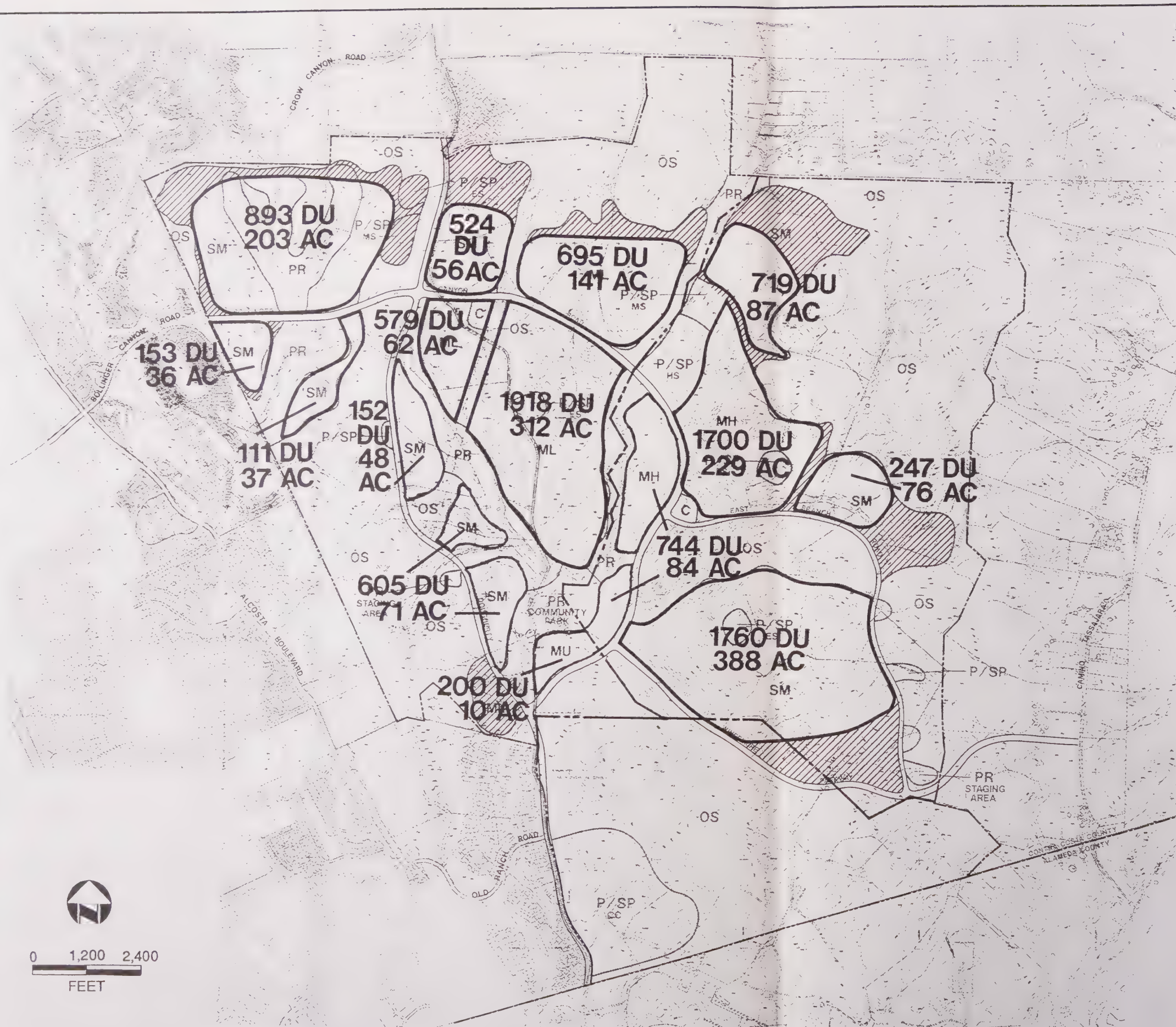
The Offsite Development Alternative would leave the Dougherty Valley project site undeveloped (such as the No-Project Alternative described above) and would involve a land use scenario that has the major characteristics of the DVSP that have been applied to the East Dublin site, as shown in Figure 3-19. Table 3-6 shows how the land uses for the Offsite Development Alternative would result in a project comparable to the DVSP project.

## **Alternatives Impact Evaluation**


The comparative environmental impacts of the alternatives identified above are discussed in Chapter 16, "Alternatives to the Proposed Project". In addition, Chapter 16 identifies a number of other project alternatives and describes why these alternatives were not selected for detailed study.



Figure 3-17.  
Concentrated Development  
Alternative Land Use Scenario



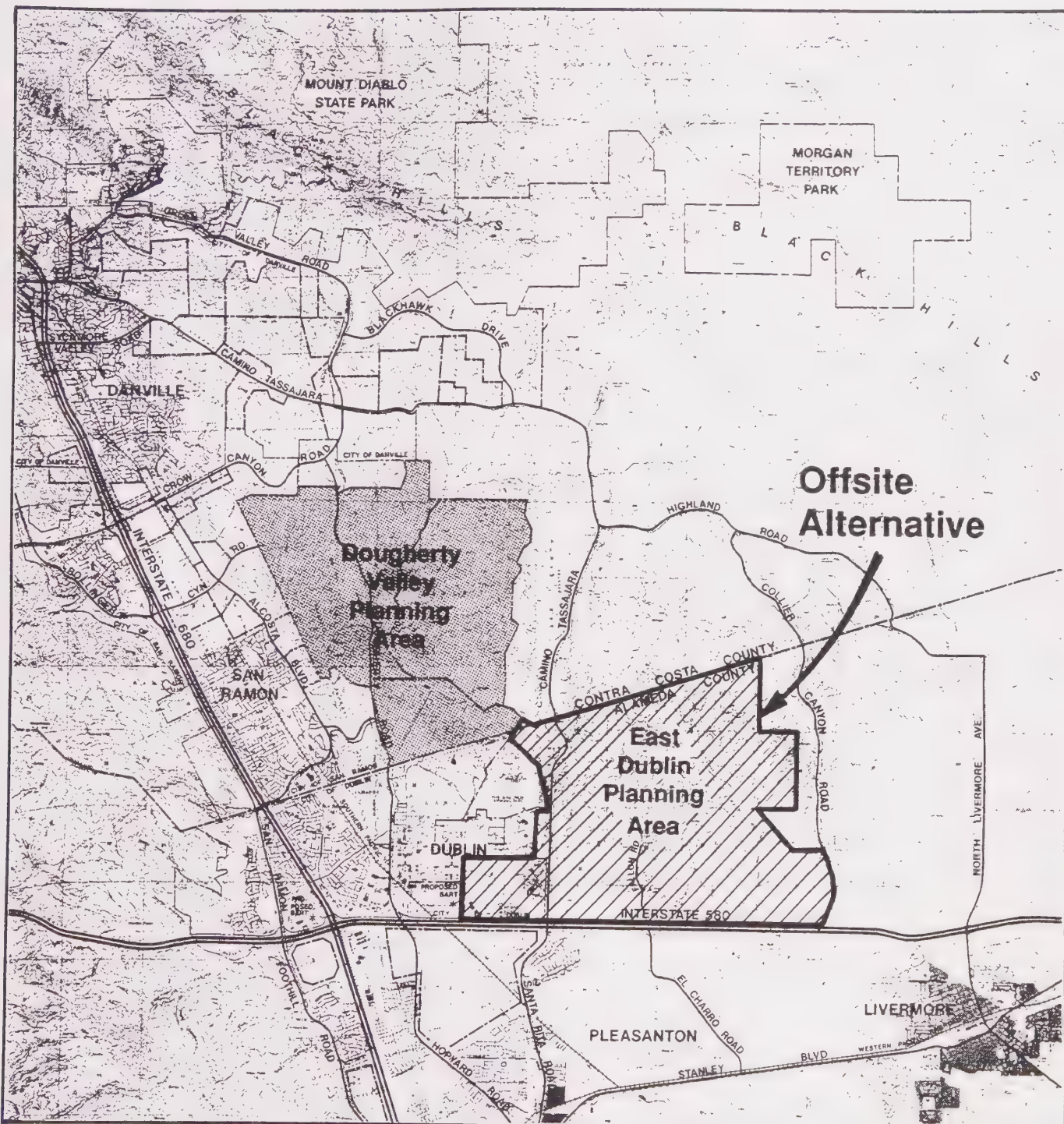
LEGEND

 Areas not Included in Development









**Offsite  
Alternative**

0 8000  
FEET



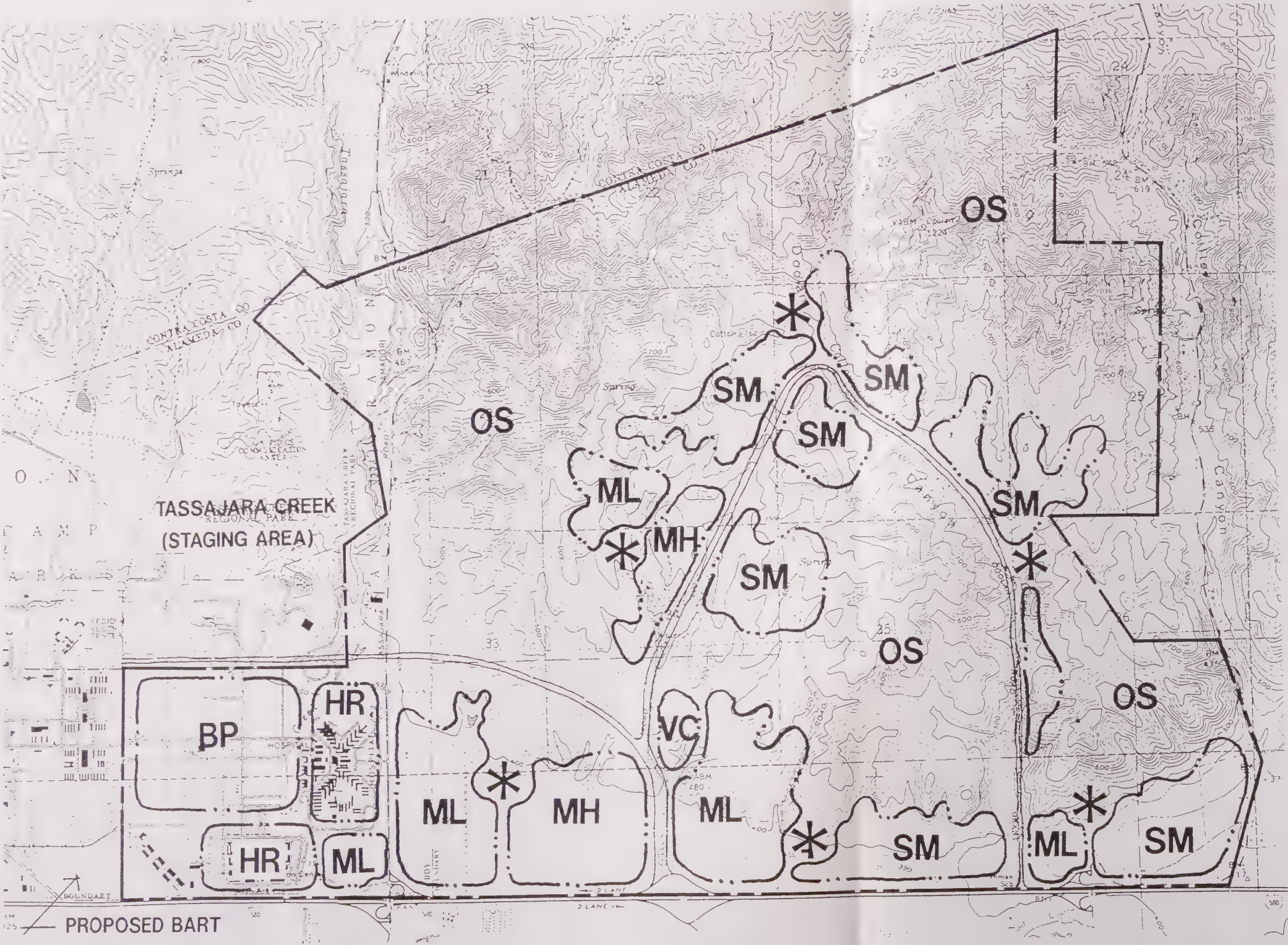
Figure 3-18. Offsite Alternative Location Map

Source: PBR 1992





Figure 3-19.  
Offsite Alternative Land  
Use Scenario



# **EAST DUBLIN PLANNING AREA LAND USE SCENARIO**

<b>SM</b>	<b>SINGLE FAMILY MEDIUM DENSITY RESIDENTIAL</b>	<b>1,430 AC</b>
<b>ML</b>	<b>MULTI-FAMILY LOW DENSITY RESIDENTIAL</b>	<b>600 AC</b>
<b>MH</b>	<b>MULTI-FAMILY HIGH DENSITY RESIDENTIAL</b>	<b>400 AC</b>
<b>VC</b>	<b>VILLAGE CENTER</b>	<b>100 AC</b>
<b>BP</b>	<b>BUSINESS PARK</b>	<b>290 AC</b>
<b>HR</b>	<b>EXISTING USES (HOSPITAL/ REHABILITATION CENTER)</b>	<b>480 AC</b>
<b>OS</b>	<b>OPEN SPACE</b>	<b>4,100 AC</b>
<b>*</b>	<b>SCHOOLS</b>	

**TOTAL ACRES                      7,400 AC**





## Chapter 4. Land Use

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### SETTING

#### Regional Land Use Setting

The Dougherty Valley planning area is located in the eastern part of what is known as the Tri-Valley region of Contra Costa and Alameda Counties. The Tri-Valley region includes the incorporated communities of Danville and San Ramon and the unincorporated communities of Alamo, Diablo, and Blackhawk, as well as Dougherty and Tassajara Valleys in Contra Costa County and the cities of Dublin, Pleasanton, and Livermore and surrounding unincorporated areas in Alameda County.

The Tri-Valley region is part of a larger Contra Costa County subarea identified as the Central County. The Central County subarea is located between the West County subarea (including the East Bay cities of El Cerrito, Richmond, San Pablo, Pinole, Hercules, and the Briones Hills) and the East County subarea (including the Diablo Range, the cities of Pittsburg and Antioch, and part of the San Joaquin Delta).

The long, narrow Diablo-San Ramon Valley runs the full length of Central Contra Costa County in a north-south direction along Interstate 680. It separates the Briones Hills from the Diablo Range and is home to the majority of the County's population in the flat valleys.

The Diablo Valley in North Central County includes the Cities of Walnut Creek, Clayton, Concord, Pleasant Hill, and Martinez. Significant unincorporated communities include the Saranap area; western Walnut Creek; the area around the Pleasant Hill BART station; Reliez Valley, Alhambra Valley, Pacheco, and Vine Hill in the Martinez area; and Clyde northeast of Concord.

The Lamorinda area west of the Diablo Valley, along State Route 24, is also considered part Central Contra Costa County. This distinct area includes the Cities of Lafayette, Moraga, and Orinda.

The San Ramon Valley along the southern portion of I-680 consists of the Town of Danville, the City of San Ramon, and the unincorporated communities of Alamo and Diablo. The unincorporated community of Blackhawk is located in the adjacent Diablo Range, but is considered part of the San Ramon Valley, as is the Tassajara-Dougherty Valley area (Contra Costa County General Plan EIR 1991).

The Central County subarea is characterized by relatively affluent suburban communities connected socioeconomically with the older, more densely urbanized San Francisco Bay area communities to the west. These Central County communities consist of mostly low-density residential land uses that surround concentrations of commercial and high technology manufacturing and business park developments that have developed in the flat valleys. These suburban communities are separated by undeveloped ridges and hilly areas that are generally used for grazing and some dryland farming, and which are the site of a number of regional parks.

This region has experienced rapid urban development from the 1960s to the present (PBR 1992). Substantial future population and employment growth is forecast for the area, lead by growth in the services, retail, high technology manufacturing, finance, and construction sectors of the local economy (Alameda County 1989). This strong economic growth trend has significant land use implications as new employment opportunities outpace the growth in the housing supply and drive demand for new and affordable housing developments.

The regional land use context is summarized in the following description of historical and recent population and development trends taken from the Contra Costa County General Plan EIR.

Through the early decades of the century, most of the inland areas of Contra Costa County remained rural, except for small pockets along the shoreline, such as Martinez, Pittsburg, and Antioch. However, in the 1940s, the County's population began to grow significantly, and 75,000 new residents streamed into Richmond in response to the shipbuilding industry created during World War II. Completion of the Caldecott Tunnel opened up access to the central portion of the County, and suburbanization began in the years following World War II. During the 1950s and 1960s, the Lamorinda and North Central portion of the county developed as a series of residential communities, with the crossroads city of Walnut Creek serving as the business and service center for the area.

Contra Costa County gained almost 200,000 new residents during the 1940s, grew by another 110,000 people during the 1950s, and added yet another 145,000 residents during the 1960s. Suburbanization continued unabated during the 1970s, adding 100,000 residents as the San Ramon Valley and portions of East and West County were opened up for development. The rapid residential growth during these decades, however, was not matched by concurrent job development. While the County's population grew by almost 250,000 residents during the 1960s and 1970s, only 110,000 jobs were created during the same period. By 1985, Contra Costa County had the lowest jobs-to-housing ratio of the nine counties in the San Francisco Bay Area because employment growth occurred in other areas and many of the workers commuted from homes in Contra Costa communities.

This trend toward housing growth without comparable job growth has started to reverse in this decade. Coupled with home-building activity during the early 1980s, Central County cities, such as Walnut Creek, Concord, and San Ramon, experienced a boom in office and other commercial development. Construction of the Bishop Ranch Business park in San Ramon and the Hacienda Business Park in nearby Pleasanton in Alameda County



were part of a national trend: major new employment centers locating in suburban areas within metropolitan regions.

Commercial growth along the I-680 corridor in Contra Costa and Alameda Counties has been created by several factors, including the decision of several large corporate firms to relocate clerical workers and other office functions from San Francisco to avoid skyrocketing office rents, the availability of relatively affordable land and housing in the suburbs, and the availability of a skilled labor force.

Renewed demand for housing has come with the commercial growth in the Central County and other parts of the Bay Area region. The mid-1980s saw rapid residential growth in many areas of the County, including the cities along the northern and southern portions of I-680; in the Pittsburg, Antioch, and Oakley areas of East County; and in parts of West County, such as Hercules. By the end of the 1980s, however, most communities in West and substantial portions of Central County were reaching a "built-out" state, so that much of the residential growth projected to occur during the 1990s and into the next century is planned in East County.

It is against the backdrop of these regional land use trends, that the immediate land use setting of the Dougherty Valley planning area is addressed in the next section.

### **Planning Area Land Use Setting**

#### **Existing Land Use**

The Dougherty Valley planning area has been used for cattle grazing and dryland grain farming since Spanish colonization in the early 1800s. The Shapell and Windemere properties are currently undeveloped and are leased for cattle grazing and dryland grain farming on a fallow rotation (Figure 4-1). Dougherty Valley is considered high-quality grazing land that currently contributes approximately \$125,580 in agricultural revenues to the local economy each year (EIP Associates 1991). One farm residence exists with several outbuildings located at the ranch headquarters, approximately 2,000 feet east of Dougherty Road in the center of the planning area. Two abandoned residential ranch sites have also been identified and are discussed in Chapter 12, "Cultural Resources".

Two two-tower 230-kV electric transmission lines run north-to-south through the Shapell property within a 275-foot-wide ROW owned by PG&E. One 21-Kv distribution line follows the 230-kV lines, a second follows Dougherty Road, and a third follows an existing east to west transmission line ROW.

The Camp Parks portion of the planning area (the portion located in Contra Costa County) is predominantly undeveloped but is used for U.S. Army reserve training exercises. A portion of the firing range and a structure storing explosives used in demolition training are located in the planning area. This undeveloped area is crisscrossed with dirt roads that provide access to the northern part of the facility, which is used during training exercises.

## Surrounding Land Uses

Existing land uses in the vicinity of the planning area are described below and identified in Figure 4-1.

**West.** Adjacent to the planning area on its westerly border is the Dougherty Hills subarea of the City of San Ramon, consisting of six single-family residential and multifamily residential projects that account for one-third of the existing and approved single-family housing and two-thirds of the multifamily units in San Ramon (San Ramon Planning Department 1986). This area has been developed while under Contra Costa County jurisdiction and has annexed on a phased basis to the city; a very small area of this project remains in the unincorporated County. The Homestead development (a 170-unit condominium project) and the West Branch development (approximately 600 residential units, of which 50% are multifamily units) are located adjacent to the planning area off of Bollinger Canyon Road. Further west on Alcosta Boulevard is the Vista San Ramon development (160 single-family residential detached units) and the Foothills development (186-unit condominium complex). Fragments of undeveloped hillsides have been preserved as open space along the ridgeline that adjoins the planning area.

Just west of Dougherty Hills is the Bishop Ranch development, which contains approximately 8.5 million square feet of built or approved office and manufacturing space and is projected to provide 28,000 jobs at completion (San Ramon Planning Department 1986).

Along the southwest perimeter of the planning area is South San Ramon, the oldest suburban portion of the City of San Ramon. This subarea provides homes for two-thirds of the city's current residents (San Ramon Planning Department 1986). Larger lot single-family residences are developed adjacent to open, undeveloped land along the Dougherty Hills ridgeline that forms the border with the planning area. A water tank is sited within County land between the southwest planning area boundary and a developing single-family residential project in the city west of Dougherty Road.

**North.** Just north and west of the planning area and west of Dougherty Road is the Canyon Lakes development, consisting of single-family residential lots, rental apartments, and condominiums. The Country View development (177 single-family units) fronts on Crow Canyon Road. Two significant parcels adjacent to the planning area boundary contain undeveloped hillsides that have been retained as open space. Areas along Camino Tassajara just north of the planning area are located in the Town of Danville and are being developed for low-density residential and neighborhood commercial uses. Also within the Town of Danville south of Camino Tassajara and along Lawrence Road to the north boundary with the planning area is a cluster of 5-acre or larger lots on which rural residences have been developed.

The area along the north side of Camino Tassajara is within the Town of Danville's sphere of influence but it is unincorporated, and the town has no specific plans on annexing



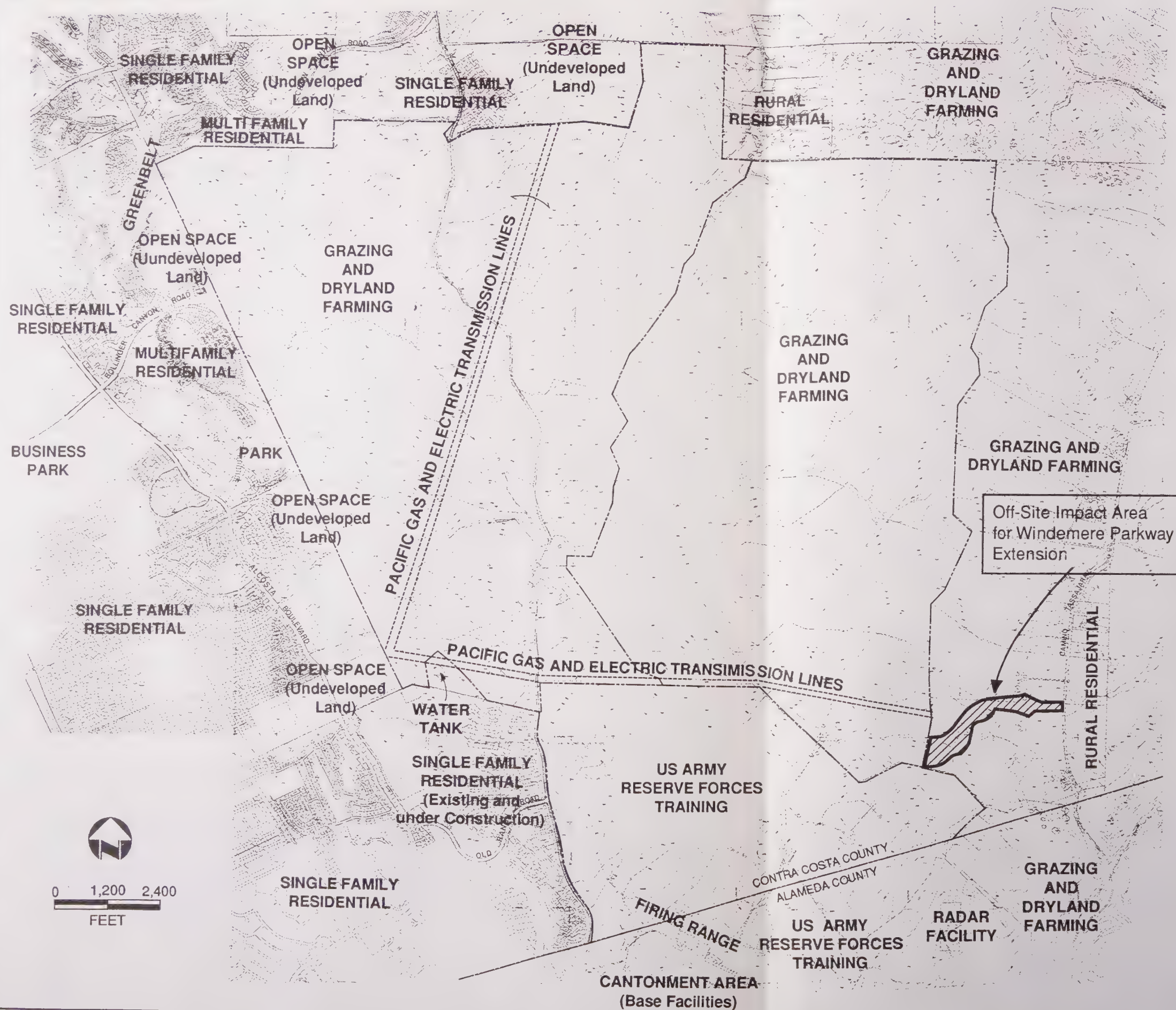


Figure 4-1.  
Existing Land Use in the  
Dougherty Valley Planning  
Area and Vicinity





the area (Crompton pers. comm.). The County is in the process of developing approved residential uses in this area, known as the Shadow Creek and Bettancourt Ranch projects.

North of Camino Tassajara and east of Dougherty Road is the Blackhawk development. Blackhawk is being developed as an exclusive suburban residential area with large single-family residences, including a golf course and neighborhood shopping center. North of Blackhawk are undeveloped grazing lands that continue north to Mt. Diablo.

**East.** The rural Tassajara Valley is located east of Dougherty Valley. This area is unincorporated and relatively undeveloped. A steep undeveloped ridgeline forms the approximate east boundary of the planning area. Large parcels (at least 80 acres in size) are used for grazing and dryland grain farming, with rural residences developed on smaller parcels scattered along both sides of Camino Tassajara. East of Camino Tassajara, the hilly land is essentially undeveloped and used for grazing and agricultural purposes, extending toward the Morgan Territory regional park and the more rugged lands of the Diablo Range.

**South.** The southern boundary of the planning area is the County line between Contra Costa County and Alameda County. The Camp Parks area is located predominantly to the south in Alameda County but extends within the southern portion of the planning area. The part of Camp Parks located adjacent to the planning area in Alameda County includes undeveloped training grounds, a radar installation, and a portion of the firing range on the western side of the facility. Further south and east of Dougherty Road is the cantonment area, the developed part of the base that houses most base facilities. At the eastern edge of Camp Parks is the undeveloped Tassajara Creek regional park site, which is being re-occupied by the Army. The site of a regional park trail access staging area is located on the west side of Tassajara Road. On the east side of Tassajara Road are relatively undeveloped grazing and agricultural lands that extend east to the Diablo Range. Federal prison and County jail facilities are southeast of and encompassed by Camp Parks.

South of the Alameda County line and west of Dougherty Road on both sides of Alamo Creek adjacent to the Camp Parks part of the planning area is an undeveloped area within the City of Dublin. Further southwest across the former Southern Pacific Railroad (SPRR) ROW in Dublin are developed single-family residential neighborhoods.

### **Williamson Act Preserves and Contracted Land**

The private landowners of Dougherty Valley entered into Williamson Act contracts (also known as the Land Conservation Act) with the County to receive property tax benefits associated with preserving agricultural use of their properties. The Williamson Act contract obligated the landowners to limit the use of the land to agriculture and compatible uses for at least 10 years in return for being assessed taxes at a rate based on the agricultural production of the land rather than its real estate market value. Both landowners gave the County their notice of nonrenewal a little over 10 years ago. The Shapell property contract expired in November 1991. The Windemere property contract expired in April 1992.

Figure 4-2 shows the lands in Contra Costa County in the vicinity of the planning area that are currently under Williamson Act contracts. A significant amount of land in the Tassajara Valley within the County's urban limit line (ULL) and to the east beyond the ULL are under contract. However, several properties bordering the planning area within the ULL have been placed in nonrenewal status and their contracts will expire between 1995 and 1999, when they would be available for proposed urban development. Three properties further east are also in non-renewal status.

## **Contra Costa County General Plan Land Use Designations**

### **Planning Area Land Use Designations**

Within the planning area, the Shapell and Windemere properties are designated by the County General Plan land use map as Agricultural Lands (Figure 4-2). The purpose of this classification is to preserve and protect land capable of producing food, fiber, and plant materials. Commercial agricultural support services, such as feed stores, veterinarians, and equipment repair shops, are allowed in areas designated as agricultural lands. The maximum permitted residential density in this designation is one unit per 5 acres, as outlined in the open space/conservation element of the Contra Costa County General Plan.

The Camp Parks portion of the planning area is designated by the land use map as Public/Semipublic (Figure 4-3). This designation is assigned to properties owned by public governmental agencies (in this case, the U.S. Army). This designation allows for a large variety of public and private uses but not development of private residences or commercial uses.

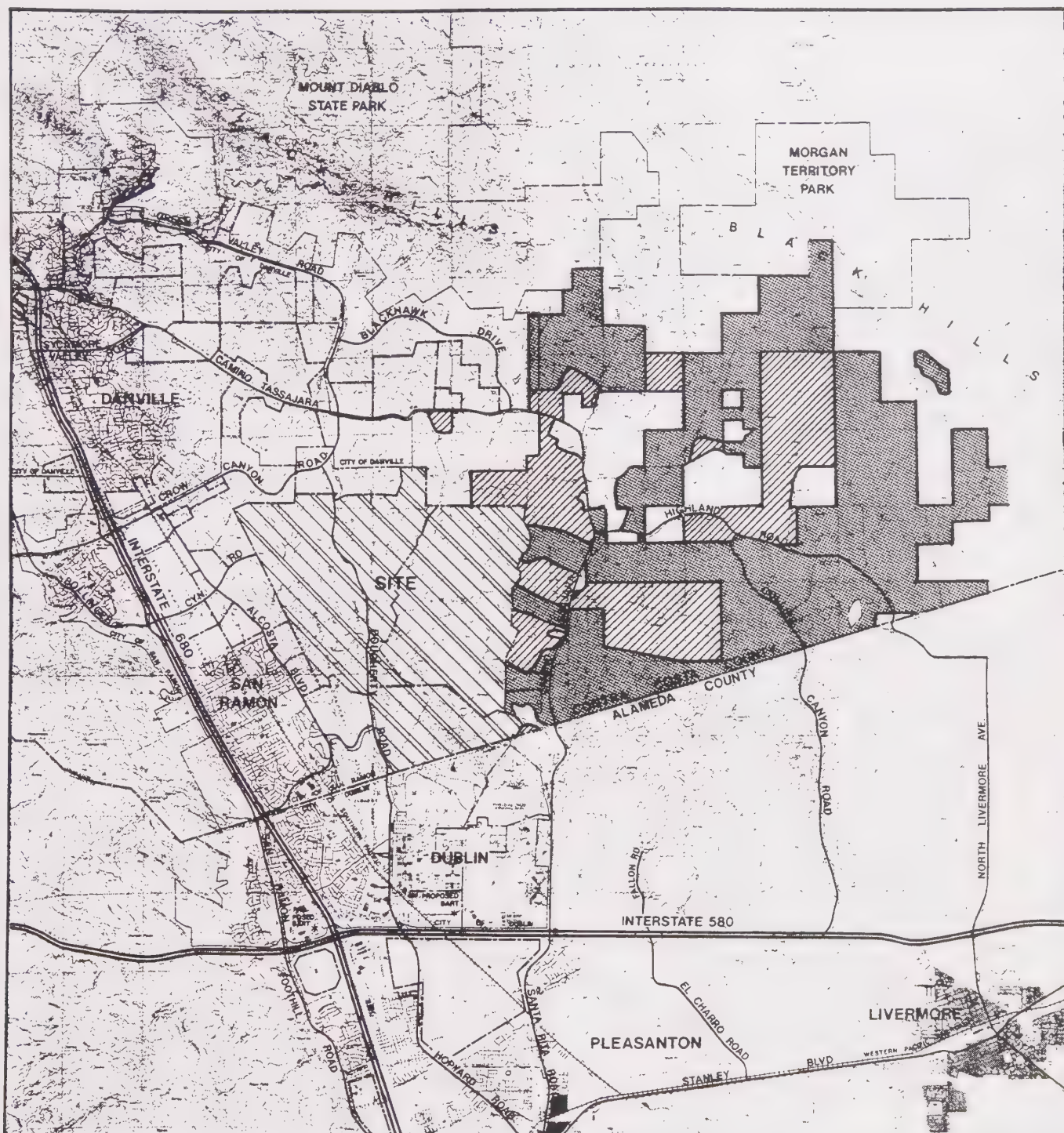
The existing Shapell and Windemere portions of the planning area are within the Contra Costa County General Plan ULL (Figure 4-4). The project proposes to add 37 acres to the Windemere portion that is presently within Camp Parks and not within the ULL. The ULL was established to designate areas that would not be considered for development within the terms of the general plan. Properties within the ULL are restricted by limitations imposed by the County's growth management plan for public services and transportation and other general plan limitations (discussed under Relevant Planning Policies and Regulatory Factors below). The ULL would have to be adjusted in connection with the addition of 37 acres to the Windemere portion of the area.

The Camp Parks portion of the planning area is outside the ULL (Figure 4-4).

### **Surrounding Area Land Use Designations**

Figure 4-2 illustrates the County general plan land use designations in the vicinity of the planning area. County designations for land that is currently within the incorporated city limits of the City of San Ramon or the Town of Danville are superseded by the land use designations of these incorporated communities (listed below).





#### LEGEND



Current Contracts



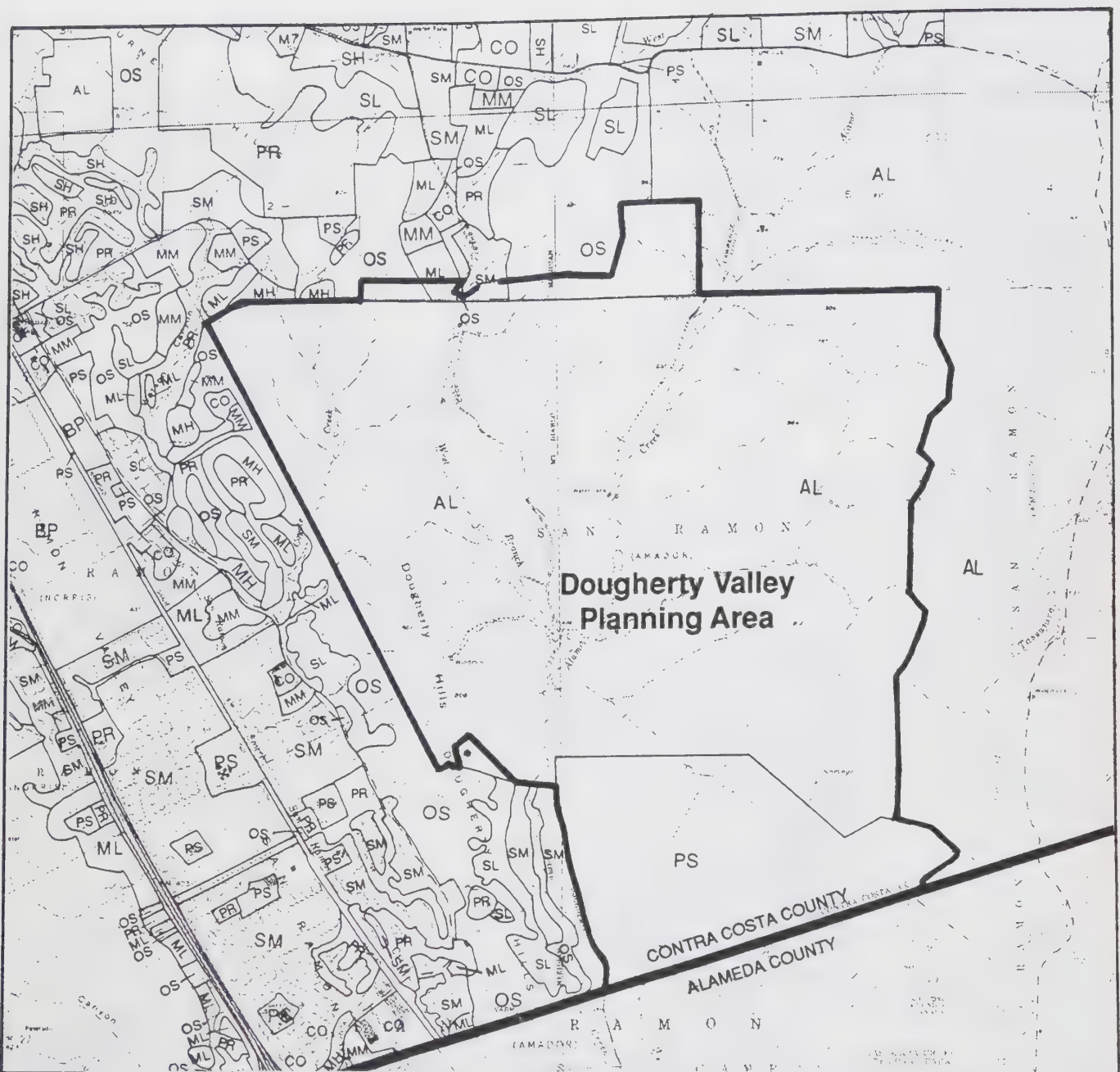
Dougherty Valley Planning Area

Current Contracts in Non-Renewal Status



Figure 4-2. Lands Currently under Williamson Act Contract in the Vicinity of the Dougherty Valley Planning Area (Contra Costa County)

Source: Contra Costa County Community Development Department 1991



**SINGLE FAMILY RESIDENTIAL (Units per net acre)\***

- [SV] VERY LOW (0.2 to 0.9)
- [SL] LOW (1.0 to 2.9)
- [SM] MEDIUM (3.0 to 4.9)
- [SH] HIGH (5.0 to 7.2)

**MULTIPLE FAMILY RESIDENTIAL (Units per net acre)\***

- [ML] LOW (7.3 to 11.9)
- [MM] MEDIUM (12.0 to 20.9)
- [MH] HIGH (21.0 to 29.9)
- [MV] VERY HIGH (30.0 to 44.9)
- [MS] VERY HIGH SPECIAL (45.0 to 99.0)
- [CC] CONGREGATE CARE/SENIOR HOUSING (N/A)
- [MO] MOBILE HOME (1.0 to 12.0)

**COMMERCIAL AND INDUSTRIAL**

- [RC] REGIONAL COMMERCIAL
- [CO] COMMERCIAL
- [OF] OFFICE
- [BP] BUSINESS PARK
- [LI] LIGHT INDUSTRY
- [HI] HEAVY INDUSTRY
- [CR] COMMERCIAL RECREATION
- [MC] MARINA COMMERCIAL
- [ACO] AIRPORT COMMERCIAL
- [LF] LANDFILL

**MIXED USE AREAS**

- [M1] DOWNTOWN RODEO
- [M2] PLEASANT HILL REDEVELOPMENT AREA
- [M3] PLEASANT HILL BART STATION
- [M4] WALNUT CREEK CORE AREA
- [M5] WEST PITTSBURG MIXED USE CORRIDOR
- [M6] DOWNTOWN CLAYTON
- [M7] WOOD RANCH [M8, M9] OAKLEY AREA

**OPEN SPACE AND OTHER USES**

- [PS] PUBLIC/SEMI-PUBLIC
- [PR] PARKS AND RECREATION
- [OS] OPEN SPACE
- [AL] AGRICULTURAL LANDS
- [AC] AGRICULTURAL CORE
- [DR] DELTA RECREATION AND RESOURCES
- [WA] WATER
- [WS] WATERSHED
- [OFF] OFF ISLAND BONUS AREA



0 0.5 1  
MILE

**Figure 4-3. Contra Costa County General Plan Land Use Element Map**

Source: Contra Costa County Community Development Department 1991



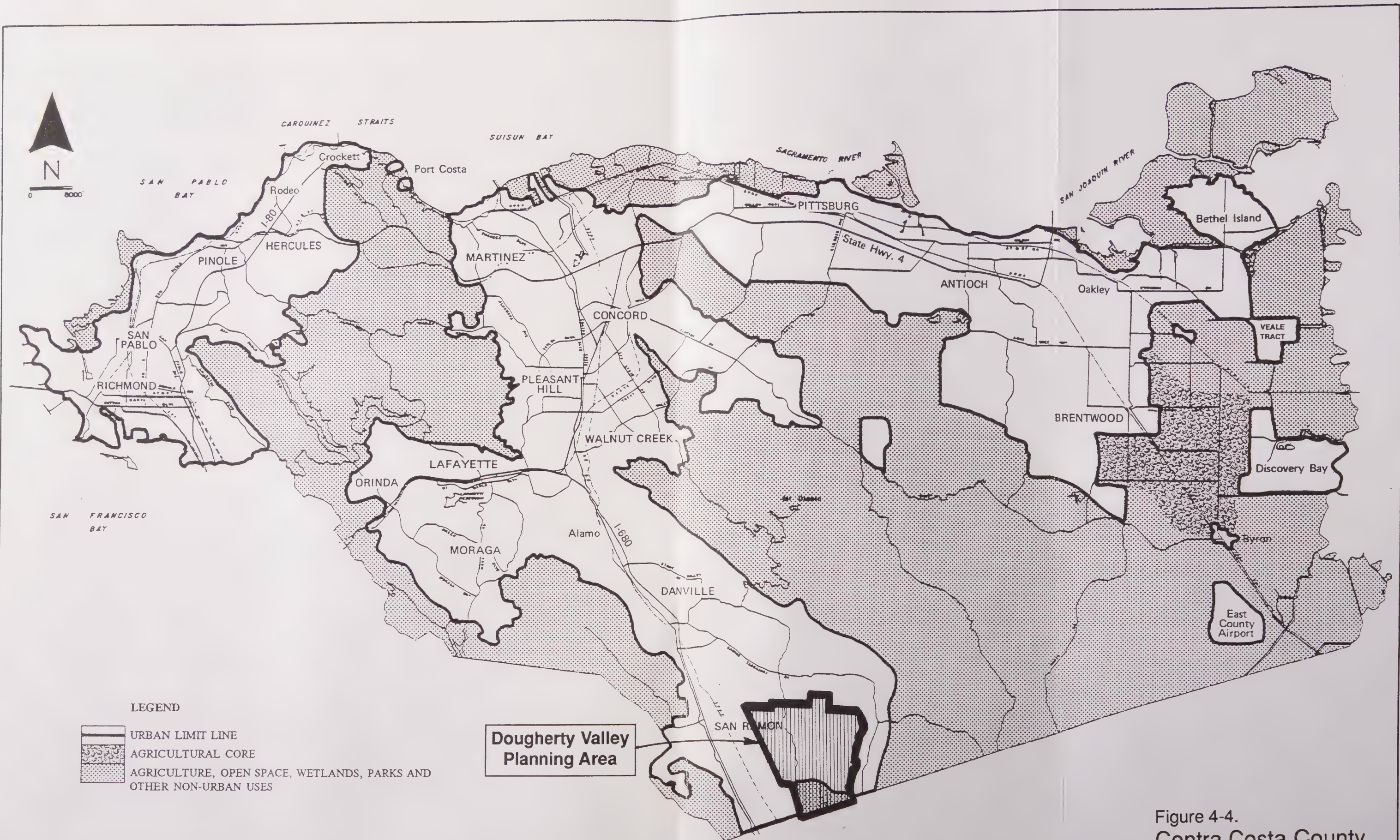


Figure 4-4.  
Contra Costa County  
Urban Limit Line





**West.** West of the planning area is designated as open space and various single-family and multifamily residential land uses. Although this area is mostly within the City of San Ramon, a small unincorporated area is designated as Open Space and Multiple Family Residential High (21.0-29.9 units per acre).

On the southwest border of the planning area is a small water tank site designated as Agricultural Lands.

**North.** To the north is designated for open space and various single-family and multifamily residential land uses. This area is mostly within the City of San Ramon and the Town of Danville (see discussion below).

North of Camino Tassajara, the unincorporated County land is designated for country estates, single-family low-density residential, and single-family medium-density residential.

North and east of the Lawrence Road area, the land is designated as Agricultural Lands.

**East.** The area to the east of the planning area is designated as Agricultural Lands.

**South.** South of the planning area is Alameda County (see discussion below).

## **Contra Costa County Zoning Districts**

### **Planning Area Zoning Districts**

Since 1979, the planning area has been zoned as A-80, an exclusive agricultural district with minimum lot sizes of 80 acres. The purpose of this zoning designation is to protect areas for agricultural use, preventing the establishment of urban or other incompatible land uses (Figure 4-5).

### **Surrounding Area Zoning Districts**

Lands adjacent to Dougherty Valley to the west, northeast, and east are shown on the County zoning map (Figure 4-5).

**West.** A small unincorporated area between the planning area boundary and the City of San Ramon is zoned as planned unit district (P-1). This zone allows for a diversified relationship of various uses, buildings, structures, lot sizes, and open spaces. On the southwest border of the planning area is a small unincorporated water tank site zoned as A-80 (exclusive agricultural district). The exclusive agriculture zones protect areas for agricultural uses by preventing the establishment of urban and other incompatible uses. The minimum parcel size is 80 acres.

## **North and Northeast**

The area north of Camino Tassajara is currently zoned as A-4, R-40, and A-2 (from west to east in the area of the developing Shadow Creek and Bettancourt Ranch projects). The Blackhawk area is zoned as P-1.

Land to the northeast of the planning area is zoned as agricultural zones and preserves (A-2, A-3, A-4) and exclusive agricultural districts (A-20, A-40, A-80). The general agricultural zones allow for agricultural and agriculture-related uses. The exclusive agriculture zones protect areas for agricultural uses by preventing the establishment of urban and other incompatible uses. In the case of the exclusive agricultural zones, the minimum parcel size is indicated as 20, 40, or 80 acres.

## **East**

The land to the east of the planning area is primarily zoned as A-80. Smaller parcels along Camino Tassajara are zoned as A-2 and A-3, general agriculture zones.

## **PLANNING POLICIES OF OTHER JURISDICTIONS**

### **City of San Ramon General Plan and Zoning**

San Ramon's plans and policies do not govern development of the planning area but are discussed to provide an context that will be used to assess the project's compatibility with surrounding land uses. Note also that the planning area is not within the City of San Ramon sphere of influence.

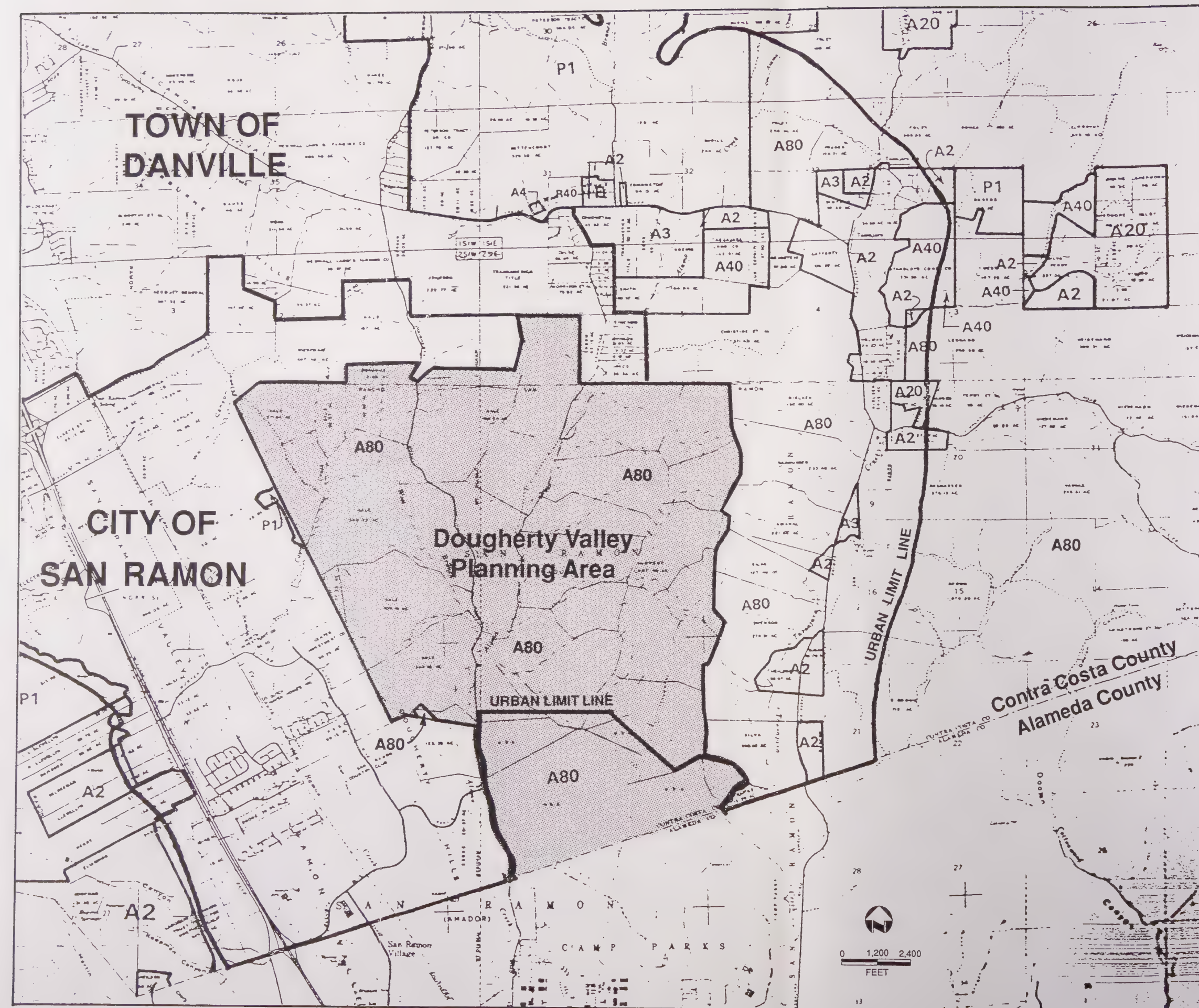
The City of San Ramon's general plan land use designations include both the incorporated land to the north and west of the planning area and the planning area itself. Lands to the west, southwest, and northwest of the planning area are under the jurisdiction of the City of San Ramon (Figure 4-6).

### **Planning Area Land Use Designations**

The Shapell and Windemere properties are included in the City of San Ramon's Planning Area Boundary; the Camp Parks portion is not included. Land uses for the Shapell property are designated by the city land use map as Residential Low Density (0.2 to 3 du/na), with several school and park sites and a commercial center indicated. The developed area is surrounded by a substantial open space designation. The City of San Ramon addresses Dougherty Valley by recognizing it as a planning subarea containing the largest area of uncommitted, readily buildable land in the San Ramon planning area (San Ramon Planning Department 1986).

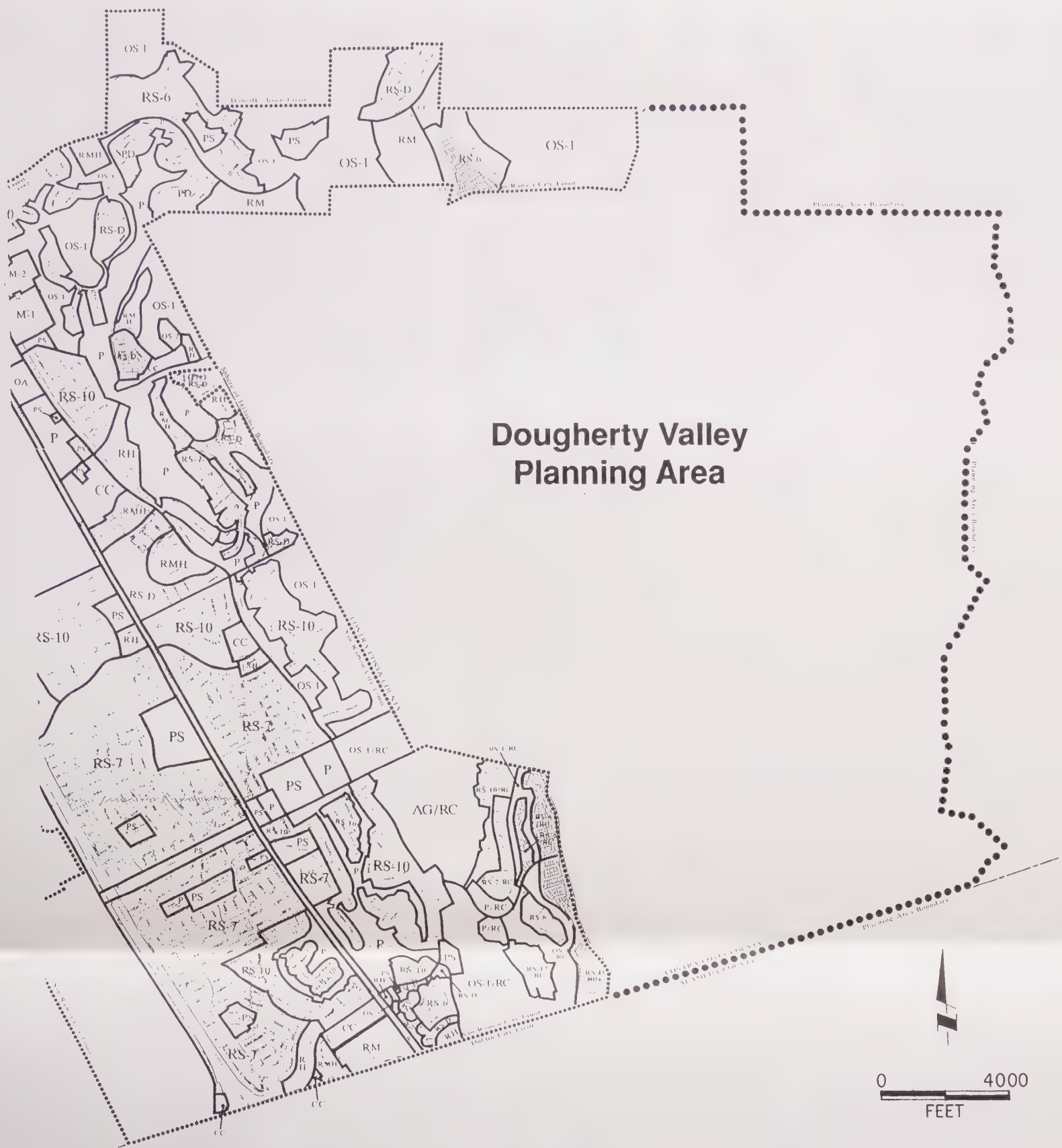


Figure 4-5.  
Contra Costa County  
Zoning Districts









## ZONING DISTRICTS

### RESIDENTIAL

- RR Rural Residential
- RE-A Residential Estate
- RE-B Residential Estate
- RS-12 Single-Family Residential
- RS-10 Single-Family Residential
- RS-7 Single-Family Residential
- RS-6 Single-Family Residential
- RS-D Single-Family Residential
- RM Medium-Density Residential
- RMH Medium-High Density Residential
- RH High-Density Residential

### COMMERCIAL

- CC Community Commercial
- CT Thoroughfare Commercial
- CS Service Commercial

### OFFICE

- OL Limited Office
- OA Administrative Office

### INDUSTRIAL

- IL Limited Industrial
- IG General Industrial
- IC Controlled Industrial

### MEDICAL

- M-1 Medical Center
- M-2 Health Facility

### AGRICULTURE

- AG Agricultural

### OPEN SPACE

- OS-1 Open Space
- OS-2 Open Space

### PARKS AND RECREATION

- P Parks and Recreation

### PUBLIC AND SEMIPUBLIC

- PS Public and Semipublic

### PLANNED DEVELOPMENT

- PD Planned Development

### OVERLAY DISTRICTS

- H Height
- RC Resource Conservation
- L Landmark
- IS Interim Study
- SH Senior Housing

### BOUNDARIES

- Zoning Districts
- ..... City Limits
- Sphere of Influence
- Planning Area

Figure 4-6. San Ramon Zoning Map





**North.** The City of San Ramon extends an "arm" along the northern boundary of the Dougherty Valley planning area. Open space and several residential land use designations occur in the eastern end of this area, including residential low-medium (3 to 6 du/na), residential medium (6 to 14 du/na), residential medium-high (14 to 22 du/na), parks and public parks designations, and a retail shopping area. Open space designations fill in the area to the east within San Ramon's sphere of influence and a large portion of the area along Crow Canyon Road toward the northern portion of San Ramon. Along Crow Canyon Road, the land uses include parks, open space (city corporation yard), residential high (22 to 30 du/na), residential low-medium, residential medium, residential medium-high, and open space (school). Crow Canyon Road continues west into the Bishop Ranch Business Park area.

**Northwest.** South of Crow Canyon Road and north of Bollinger Canyon Road, the land uses include residential medium-high, residential low-medium, residential medium, parks, and open space (including a hospital and church on the east side of Alcosta Boulevard). Along the north side of Bollinger Canyon Road are retail shopping, commercial services, and a senior residential high designation. To the west is the Bishop Ranch Business Park area.

**West.** Residential land uses dominate the lands west of the Dougherty Valley planning area. South of Bollinger Canyon Road and east of Alcosta Boulevard, the land uses vary from open space to residential high density. Along the western boundary of the planning area and San Ramon's sphere of influence is open space. To the west are residential high, residential medium, and residential low-medium, interspersed with park designations. West of Alcosta Boulevard, the designations include residential medium high, residential medium, a large retail shopping designation, and a small open space area just south of Bollinger Canyon Road. Further west is the southern portion of the Bishop Ranch Business Park area.

**Southwest.** The southwest boundary of the planning area is predominantly open space. On the east side of Alcosta Boulevard is a residential low (0.2 to 3.0 du/na) designation, surrounded by open space. Further south and north of Old Ranch Road are more residential low, residential low-medium, and park designations, which continue along Dougherty Road south towards the County line. A residential medium designation exists on the west side of Dougherty Road at the County line. West of this area is South San Ramon, which is primarily residential low-medium with scattered parks and retail at Village Parkway and Alcosta Boulevard.

#### **Other Relevant San Ramon Planning Policies**

The City of San Ramon General Plan contains policies that address development in Dougherty Valley (San Ramon Planning Department 1986). The following are some of the

more relevant policies. A copy of the San Ramon General Plan should be referred to for additional information on San Ramon's policies concerning the planning area.

- Policy 2.4L - Dougherty Valley Subarea. The Dougherty Valley subarea consists of the 2,300-acre (sic [2,700-acre]) Gale Ranch and grazing land adjacent to Old Ranch Road. A specific plan must be prepared for the entire Gale Ranch . . . prior to consideration of development proposals.

The specific plan is to, at a minimum, provide:

- Extensive open space and a corridor for Alamo Creek;
- Roadway designs that minimize freeway-bound trips through the San Ramon Valley;
- Preservation as open space of the Dougherty Hills band as shown on the General Plan map including some land under 20 percent slope;
- Road connection and traffic capacity to accommodate primary access for the Gumpert Ranch east of the Planning Area boundary;
- Infrastructure necessary to support the area and, also, benefit the entire City;
- Provide exact residential unit counts;
- Designate areas for public and quasi-public uses, such as churches, private recreational facilities, and corporation yards;
- Geometrics and alignment of new roadways;
- Coordinated planning with the Gumpert Ranch;
- Require contributions and/or dedications from developers for provisions of community facilities and services.

Although the area adjacent to Old Ranch Road is not specified to be included in the Specific Plan, the guiding policies shall apply to this area.

Topographic conditions limiting access to the Gumpert Ranch from other directions require that a main access be via Dougherty Road.

- Guiding Policy 3.2(A). Design urban development to facilitate continued grazing on designated open space.
- Guiding Policy 3.2(B). Minimize conflicts between agricultural and urban uses.

- Guiding Policy 3.2(C). Designate environmentally fragile canyons for ranchettes in order to preserve visual open space, provide opportunities for horse keeping and part-time ranching, and maintain compatibility with adjoining agricultural uses.
- Policy 6.2(O) - Dougherty Road: Develop as a relatively high speed four lane parkway connecting Danville/Blackhawk and San Ramon to Dublin, Pleasanton, and Livermore. Reserve right-of-way for up to six lanes plus a median strip.

The Dougherty Valley Specific Plan will determine the roadway's design and alignment. Dougherty Road should be a continuous extension of Bollinger Canyon Road extension with the north segment of Dougherty Road forming a "T" intersection. This will encourage use of Dougherty Road for trips from Bishop Ranch and Canyon Lakes to I-580 and Hacienda Business Park, relieving I-680 and the Bollinger Canyon/I-680 interchange.

**Open Space.** The open space element of the general plan includes guiding policies for the preservation of ridgelines and hillsides. Guiding Policy 3.1(A) states that ridgelines and hillsides steeper than 20% slope shall be retained as open space. Guiding Policy 3.1(E) designates all land with over 20% slope as open space to minimize mass grading and destruction of natural landforms, reduce the risk of landslides, and preserve open space (San Ramon Planning Department 1986).

### **City of San Ramon Zoning Districts**

Lands to the west, southwest, and northwest of the planning area are under the jurisdiction of the City of San Ramon (Figure 4-6). The city zoning map indicates the following zoning districts for areas in the vicinity of the planning area.

**West.** West of the planning area, the San Ramon Zoning Map shows open space/parks and residential zoning designations. The open space/parks designations are OS-1, OS-2, and P. A few of these zones also have resource conservation (RC) overlay districts. The residential zones range from single-family residential (RS-7, RS-10, and RS-D) to multifamily residential (RM, RMH, and RH).

**Southwest.** The southwest portion of the planning area is adjacent to various zones, all of which have RC overlay districts. Residential zones (RS-6, RS-7, RS-10, and RS-12) are adjacent to a large agricultural zone (AG) and several open space/parks zones (OS-1, OS-2, and P).

**Northwest.** The narrow band of properties extending along the northwestern boundary are zoned as either residential or open space/parks. The residential zones range from single-family residential (RS-6 and RS-D) to multifamily residential (RM). There is



also a PD zone in the northwestern corner. A few open space/park zones (OS-1 and P) and two public/semi-public zones (PS) are present.

### **Current San Ramon Planning Efforts in Dougherty Valley**

In 1989, the Dougherty Valley Subarea (Gale Ranch, now the Shapell property) and the adjacent Gumpert Ranch (now the Windemere property) were proposed for potential annexation and development within the City of San Ramon. The policies of the San Ramon general plan regarding Dougherty Valley were to be addressed by preparation of a specific plan, which is now being considered for approval by the city.

Preparation of the San Ramon Dougherty Valley specific plan was initiated with preparation of a constraints and opportunities report (ROMA Design Group 1990). In June 1991, the city released the final draft of the Dougherty Valley Growth Management and Specific Plan (DVGMSPP). The city released a draft EIR for public review in September 1991 (EIP Associates, 1991). The public comment period has ended and responses to comments are in preparation. The DVGMSPP is currently scheduled for consideration by the city in mid-June and could be acted on by the City Council by late July (Mills pers. comm.)

### **Danville General Plan and Zoning**

The planning area adjoins the Town of Danville and its sphere of influence on the north. Danville's plans and policies do not govern development of the planning area but are discussed to provide a context that will be used to assess the land use impacts of the project.

### **Danville General Plan Land Use Designations**

The Town of Danville is currently in the process of a GPA for the southeast portion of the town, just north and adjacent to the Dougherty Valley planning area. Currently, the land use designation is agriculture. The GPA is proposing Country Estates (1 du/na), Single-Family Low Residential along Lawrence Road (1 to 3 du/na), and Single-Family Medium Residential along Camino Tassajara (3 to 5 du/na) land uses. Known as the Lawrence-Leema Road Specific Plan Area (LLRSPA), the area currently has 79 lots. With the GPA and an increase in density, the area will have approximately 305 residential lots (Crompton pers. comm.).

In addition to single-family residential land uses, the areas to the west of the LLRSPA have multiple-family low density residential (7 to 13 du/na) and some commercial land uses. Single-family residential land uses dominate the Danville area along Camino Tassajara, moving west towards downtown Danville. Further north and south of Camino

Tassajara and beyond the residential land uses are various open space and agricultural land uses.

### **Danville Zoning Districts**

The Town of Danville's zoning designations are consistent with the land use designations in the general plan. The LLRSPA is currently zoned as A-2, which permits residential (minimum 5-acre lots) and most agricultural uses (some with conditional use permits). West of the A-2 zone is P-1 land, planned unit development district. This P-1 zone is residential with densities consistent with the general plan densities. The P-1 zone extends west to the outskirts of downtown Danville and is almost exclusively residential. The only commercial area within the P-1 zone is at the southeast corner of Crow Canyon Road and Camino Tassajara.

### **Alameda County: Livermore-Amador Valley Planning Unit General Plan and Zoning**

The Dougherty Valley planning area is adjacent to Alameda County. Alameda County's plans and policies do not address development of the planning area. The Livermore-Amador Valley Planning Unit General Plan (LAVPUGP) is part of the County's general plan and provides a more detailed discussion of the plans and policies governing land uses for the area. This plan is discussed to provide a context that will be used to assess the land use impacts of the project.

### **Livermore-Amador Valley Planning Unit General Plan and Zoning Designations**

The LAVPUGP designates the Camp Parks area, between Dougherty Road and Tassajara Road, as major public and major parks. East of this area, an agricultural open space with urban development potential designation exists along Tassajara Road south to I-580. A majority of the land to the east of Tassajara Road is designated as large-parcel agriculture. The LAVPUGP refers to the County planning subarea's plans for specific land use and zoning designation information. The land adjacent to the planning area to the south is located within the Dublin subarea. Specific land use and zoning designations are addressed in the discussion of the Dublin General Plan.

### **Other Relevant Policies: Livermore-Amador Valley Planning Unit General Plan**

Although the LAVPUGP does not specifically address development in the Dougherty Valley planning area, it does state principles on growth and development that reflect the direction of growth in the region.

Objective 1, Principle 1.2 of the LAVPUGP states the following: "Existing communities should serve as the nuclei for future urban growth, with development and redevelopment producing orderly and efficient growth. Urban expansion should allow for efficient extension of public services and facilities."

Objective 2 deals with policies for the unincorporated areas of the County, which include Camp Parks and the lands east, currently designated as public use/open space by the County. Principle 2.1 states the following: "Land Uses providing for the preservation and long-term management of open space should be encouraged and supported as principal and priority uses throughout the unincorporated area of the LAVPU."

### **City of Dublin General Plan and Zoning**

The City of Dublin's plans and policies are discussed to provide a context that will be used to assess the land use impacts of the project.

The City of Dublin's general plan divides the city into a primary planning area (west of Dougherty Road) and an extended planning area (east of Dougherty Road).

#### **City of Dublin General Plan Designations**

**Primary Planning Area.** West of Dougherty Road, the land uses vary from residential to business park and industrial. From east to west, the land uses are as follows: medium-density residential (6.1 to 14 du/na), an open space creek corridor, business park/industrial, single-family residential (0.9 to 6 du/na), and the abandoned Southern Pacific Railroad ROW.

The Dublin primary planning area has essentially been developed or approved for development. Only 159 acres of land remain that are suitable for development in the city. Development policy for the primary planning area is for the continued development and intensification of the remaining developable land, primarily focused on a 79-acre site just east of the Dougherty Hills area. This area is designated medium-density residential, with an estimated development of 482 to 1,105 du/na. This requires mixed dwelling types, including single-family detached units, and permits up to 25 du/na on some portions of the site.

**Extended Planning Area.** East of Dougherty Road are both the Camp Parks area and the Tassajara Creek Regional Park. Both of these areas are designated as public lands in the general plan and are within the Dublin sphere of influence. The properties west of Tassajara Road are considered open land with development potential. Dublin is in the process of preparing an Eastern Dublin Specific Plan for this area. The Eastern Dublin Specific Plan proposes residential, commercial, light industrial, and park land uses. Dublin estimates that at buildout of the specific plan, there will be approximately 12,500,000 square feet of commercial/industrial land uses and 18,500 dwelling units (Carrington pers. comm.).



East of Tassajara Road are lands with 30% or greater slopes with no substantial development potential. This area is to remain permanent open space (Dublin 1985); however, because the City of Dublin has no open space land use designations, some very-low-density residential uses (1 du per 100 acres) may be proposed as part of the specific plan.

### **City of Dublin Zoning Districts**

**Primary Planning Area.** The lands adjacent to the planning area within the City of Dublin and zoned as PD, planned development. There are several planned developments in this area consisting of medium-density residential, commercial, industrial, and business park uses.

**Extended Planning Area.** Camp Parks is a military area for which Dublin does not have a particular zoning designation. The areas east of Camp Parks are zoned as A, agricultural districts with minimum 100-acre lots (Troy pers. comm.).

## **RELEVANT PLANNING POLICIES AND REGULATORY FACTORS OF CONTRA COSTA COUNTY**

The planning area is subject to the land use planning and development policies and regulations of the Contra Costa County General Plan and zoning ordinance. Relevant planning policies and regulatory factors are summarized below.

### **Contra Costa County General Plan**

The Contra Costa County General Plan expresses the broad goals and policies and specific implementation measures intended to guide decisions on future growth, development, and conservation of resources through the year 2005. The goals, policies, and implementation program contained in the general plan represent the hopes and concerns of the residents of the county in terms of defining and preserving a quality of life (Contra Costa County Community Development Department 1991).

The County general plan has been strongly influenced by two recent voter initiative measures that provide a context for County planning and development and have "guided the evolution of most of the elements" (Contra Costa County Community Development Department 1991). These measures are provided in their entirety in the general plan and are summarized below.

## Measure C 1988

The Contra Costa Transportation Improvement and Growth Management Program (Measure C 1988) established a  $\frac{1}{2}$ -cent sales tax to fund comprehensive regional transportation infrastructure improvements, transit service, and trails development to reduce traffic congestion. To receive local street maintenance and improvement funds, local jurisdictions are required to:

- adopt a growth management element;
- adopt traffic level-of-service standards;
- adopt performance standards for fire, police, parks, sanitary facilities, water, and flood control to be addressed by capital improvement programs;
- adopt a development mitigation to ensure that new growth pays its share of costs associated with that growth;
- participate in a cooperative planning process to reduce cumulative regional traffic impacts of development;
- develop a 5-year capital improvement program to meet or maintain traffic service and performance standards;
- address housing and job opportunities for all income levels; and
- adopt a transportation systems management (TSM) ordinance (Contra Costa County Community Development Department 1991).

Contra Costa County's 1991 General Plan update responded to Measure C (1988) by incorporating a "Growth Management Element" that sets forth LOS requirements and other performance standards required by Measure C (1988) and describes how they will be implemented. Additional implementing provisions are found in the General Plan's transportation and public facilities elements.

Growth management is designed to avoid the impacts of new growth by delaying development until the provision of facilities and services can be ensured. The operative requirements are found in Policies 4-1 and 4-2 which provide that, before it allows new development, the County must be assured that the applicant will be able to provide the infrastructure necessary to meet applicable performance standards, a funding mechanism has been established to provide such infrastructure, or other applicable requirements of the growth management element have been satisfied.

Where these assurances are lacking, development will be "temporarily deferred" until it is ensured that performance standards will be met as development proceeds. If a project will be unable to provide such assurances in the future, it may be recommended for denial. By contrast, new development can be approved if, prior to issuance of building

permits, growth management standards can be met or assured of being met (see General Plan Policy 3-5).

These principles are applied more specifically by other provisions in the General Plan, which addresses both funding and capacity issues, as follows.

### **Funding Issues**

It is not enough to plan for infrastructure development (e.g., road improvements, fire and police facilities) if it will be underfunded. Growth management therefore requires a funding program for infrastructure associated with development to be ensured of being in place at the appropriate time (see General Plan Policy 4-1, Implementation Measure 4-m). The proposed development agreements for the Dougherty Valley will address funding mechanisms for each of the facilities and services governed by growth management performance standards. These agreements should provide the assurances necessary to satisfy, and ensure consistency with, the growth management standards imposed by the General Plan.

### **Capacity Issues**

In certain instances, the existence of a funding program alone may not ensure that necessary services or facilities will be provided to a project. This is particularly true where the facilities must be provided by a jurisdiction other than the County, such as a water or sewer district. In these instances, the County will require additional verification of "capacity" before a project can be built.

For example, the growth management element (General Plan Page 4-11) states that the County should determine whether capacity exists within the applicable water or sewer system to serve a project as it is built out, or capacity will be provided by a funded program or other mechanism. The requirement can be satisfied by the County's advance determination (based on information available to the County from the project applicant, relevant water agency, or other sources) as to whether capacity exists or will be provided or by conditioning the issuance of final project approvals on verification (based on "will-serve" letters, actual hook ups, or "comparable evidence") that capacity is available. Similarly, the public facilities element (Implementation Measure 7-1, Page 7-16) provides that final subdivision maps and development plans generally will not be approved without verification (based on substantial evidence) that capacity exists. While tentative subdivision maps and preliminary development plans can be approved without verification of capacity, they will lapse if final maps or development plans cannot be processed within the required time limits because such verification cannot be provided.

### **Avoidance of Impacts**

The County's Growth Management Program is expected to prevent certain environmental impacts of growth. Growth management acts are expected to regulate Countywide growth, ensuring that they do not proceed without assurances that adequate infrastructure



will be planned for and funded. This is particularly important in the evaluation of cumulative and growth-inducing impacts, both of which are limited greatly by growth management's assurances that only quality growth can occur.

### **Measure C 1990**

The 65/35 Contra Costa County Land Preservation Plan (Measure C 1990) became "the official policy of the County with respect to the preservation of open space and agricultural lands and the protection of valuable environmental resources such as wildlife, wetlands, hillsides, and ridgelines" (Contra Costa County Community Development Department 1991). Measure C 1990 was to be implemented through comprehensive revision of the general plan to:

- limit urban development to no more than 35% of the land in the County and preserve 65% of the land for agriculture, open space, wetlands, parks, and other non-urban uses.
- prohibit changes to the general plan that would result in greater than 35% of the land permitted for urban development;
- incorporate a ULL based on explicit criteria in Measure C 1990;
- ensure growth management in accordance with infrastructure and service standards in accordance with Measure C 1988, allowing consideration of development within the ULL but retaining a substantial portion of land within the ULL for open space, parks, and recreational uses;
- establish a minimum parcel size of 40 acres for prime productive agricultural land located outside the ULL;
- restrict development on open hillsides and significant ridgelines throughout the County by protecting hillsides with a grade of 26% and greater outside the ULL through zoning or other appropriate action;
- allow changes to the ULL based on specific findings listed in Measure C 1990;
- advise LAFCO to support these measures when considering requests for incorporation or annexations of cities or service districts, and to require that a city provide a fair share of affordable housing at development;
- require the County to update the general plan to conform to State housing requirements and allow the County to change the ULL to meet its fair share of affordable housing; and
- require the County, as feasible, to enter land preservation agreements with cities to preserve agriculture, open space, or parks (Contra Costa County Community Development Department 1991).

These policies were incorporated into the current Contra Costa County General Plan and are reflected in each of the applicable elements. The policies applicable to the project are identified for each element as indicated below.

## **Land Use Element**

The land use element of the Contra Costa County General Plan implements key aspects of Measure C 1990 in the manner summarized in the following discussions.

**65/35 Land Preservation Standard.** The 65/35 Land Preservation Standard (LPS) limits urban development in the County through at least the horizon of the general plan to no more than 35% of the land in the County and requires that at least 65% of all land in the County be preserved for agriculture, open space, wetlands, parks, and other non-urban uses. The LPS ensures that both within and outside the ULL, no more than 35% urban development will occur in the county, irrespective of potential general plan amendments in the future.

**Urban Limit Line.** The ULL was established to designate areas appropriate for protection against urban development. However, the fact that a property is located inside the ULL provides no guarantee or implication that it may be developed. Development of property within the ULL is restricted by limitations imposed by the growth management element and other limitations of the general plan. Properties within the ULL that do not currently have land use designations that would permit urban development must obtain a general plan amendment in order to permit urban development. The general plan states that "even if land is developed within the ULL, a substantial portion of this land shall be retained for non-urban uses such as open space, parks, and recreational uses" (Contra Costa County Community Development Department 1991).

According to the Contra Costa County General Plan, development of a specific plan for Dougherty Valley would be consistent with the County's ULL. While a minor adjustment to the ULL along the boundary with Camp Parks (which is outside the ULL) is necessary, the specific plan could proceed under the existing ULL (based on an alternate road configuration) if the ULL adjustment were not approved.

The general plan states that any changes to the ULL require a 4/5 vote of the Board of Supervisors after holding a public hearing and by making one or more of the findings based on substantial evidence. One of these findings states that a minor change to the ULL may be considered if it "will more accurately reflect topographical characteristics or legal boundaries" (Contra Costa County Community Development Department 1991).

**Policies for Special Concern Areas.** The land use element includes a statement concerning the planning process specific to Dougherty Valley. The statement indicates that the County and the City of San Ramon have entered into an MOU to facilitate the joint planning of Dougherty Valley, and that this is why this area is not included in the discussion of area plan policies. This statement is proposed for replacement by the GPA that accompanies the DVSP in order to reflect preparation of the DVSP.

## **Growth Management Element**

The growth management element is intended to meet the requirements of Measure C 1988 by establishing policies and standards for traffic levels of service and performance standards for fire, police, parks, sanitary facilities, water, and flood control to ensure that the necessary facilities are developed. Public facilities service performance standards are addressed in Chapter 5, "Public Services and Utilities". Traffic levels of service are addressed in Chapter 6, "Circulation".

## **Transportation and Circulation Element**

The transportation and circulation element establishes the goals, policies, and implementation measures necessary to ensure that the system has adequate capacity to serve planned growth.

The relevant traffic policies from this element are addressed in Chapter 6, "Circulation". The relevant scenic routes policies from this element are addressed in Chapter 15, "Aesthetics and Visual Quality".

## **Housing Element**

The Housing Element presents policies and actions for housing provision and provides a County housing plan that will help in qualifying for housing aids and grants. The Housing Element contains an evaluation of the existing and projected housing needs, the housing market conditions, and special housing needs (including very low and low income households and other populations that have difficulty in obtaining adequate shelter). Housing constraints, such as governmental regulations, financing, and land cost, are identified. The Housing Element lists goals, policies, and implementation measures and provides a housing program.

The relevant policies from this element are addressed in Chapter 14, "Population and Housing".

## **Public Facilities/Services Element**

The public facilities/services element establishes goals and policies that address the infrastructure and public services consistent with the Growth Management and Land Use elements (which implement Measure C 1988 related to public facilities and services).

The relevant policies from this element are addressed in Chapter 5, "Public Services and Utilities".



## **Conservation Element**

The identification, preservation, and management of the natural resources of Contra Costa County are addressed in the Conservation Element. Components of Measure C 1990 relating to the preservation of land for agriculture, open space, wetlands, parks, and other non-urban uses are addressed by goals, policies, and implementation measures contained in the element.

The relevant policies from this element are addressed in Chapter 11, "Biological Resources".

## **Open Space Element**

The Open Space Element contains goals and policies to provide a policy framework for the preservation of open space lands, an open space map, and an implementation program. In addition, this element addresses goals, policies, and implementation measures associated with scenic resources, historic and cultural resources, and parks and recreation.

The relevant policies from this element are addressed in Chapter 5, "Public Services and Utilities" (open space, parks and recreation); Chapter 12, "Cultural Resources"; and Chapter 15, "Aesthetics and Visual Quality" (scenic resources).

## **Safety Element**

The Safety Element addresses known hazards associated with seismic and geologic conditions, flood and fire hazards, hazardous materials spills, and water quality protection. This element identifies hazards that are to be considered in land use planning decisions and establishes goals, policies, and implementation measures to address these hazards.

The relevant policies from this element are addressed in Chapter 5, "Public Services and Utilities"; Chapter 9, "Soils and Geology"; and Chapter 10, "Hydrology and Water Quality".

## **Noise Element**

The Noise Element analyzes the current and projected noise levels associated with the major highway and road network, rail and transit operations, airports, and major industrial noise sources throughout the County. In addition, this element provides goals, policies and implementation measures to address these noise sources and to influence land use decisions that have noise implications.

The relevant policies from this element are addressed in Chapter 8, "Noise".

## Relevant Contra Costa County General Plan Policies

- Goal 3-A. To coordinate land use with circulation, development of other infrastructure facilities, and protection of agriculture and open space, and to allow growth and the maintenance of the County quality of life. In such an environment all residential, commercial, industrial, recreational and agricultural activities may take place in safety, harmony, and to mutual advantage.
- Goal 3-B. To provide opportunities for increasing the participation of Contra Costa County in the economic and cultural growth of the region, and to contribute to, as well as benefit from, the continued growth in importance of the Bay Region and the State of California.
- Goal 3-C. To encourage aesthetically and functionally compatible development which reinforces the physical character and desired images of the County.
- Goal 3-D. To provide for a range and distribution of land uses that serve all social and economic segments of the County and its subregions.
- Goal 3-E. To recognize and support existing land use densities in most communities, while encouraging higher densities in appropriate areas, such as near major transportation hubs and job centers.
- Goal 3-F. To permit urban development only in locations of the County within identified outer boundaries of urban development where public service delivery systems that meet applicable performance standards are provided or committed.
- Goal 3-G. To discourage development on vacant rural lands outside of planned urban areas which is not related to agriculture, mineral extraction, wind energy or other appropriate rural uses; discourage subdivision down to minimum parcel size of rural lands that are within, or accessible only through, geologically unstable areas; and to protect open hillsides and significant ridgelines.
- Goal 3-I. To coordinate effectively the land use policies of the County General Plan with those plans adopted by the cities and special service districts.
- Goal 3-J. To encourage a development pattern that promotes the individuality and unique character of each community in the County.
- Goal 3-K. To develop a balance between job availability and housing availability with consideration given to wage levels, commute distance and housing affordability. The individual characteristics of the several sub-

regions of the County and their interaction with other regions shall be considered when establishing criteria for delivering that balance.

- Goal 3-L. To safeguard the County's obligations to provide its fair share of safe, decent and affordable housing.
- Goal 3-M. Protect and promote the economic viability of agricultural land.
- Goal 3-N. To coordinate effectively the policies of the Land Use Element with appropriate Local Agency Formation Commission (LAFCO) determinations.

The following are broad, countywide policies relevant to the planning area.

### **Jobs/Housing Balance**

- Policy 3-1. Housing infill shall be supported and stimulated where the jobs/housing ratio shows an overabundance of jobs to housing.
- Policy 3-3. As feasible, areas experiencing rapid urban growth shall be developed so as to provide a balance of new residential and employment opportunities.
- Policy 3-4. Financing mechanisms shall be developed which spread the costs of facilitating jobs/housing balance between existing and new development.

### **Growth Management, 65/35 Land Plan, and Urban Limit Line**

- Policy 3-5. New development within unincorporated areas of the County may be approved, providing growth management standards and criteria are met or can be assured of being met prior to the issuance of building permits in accordance with the growth management.
- Policy 3-6. Development of all urban uses shall be coordinated with provision of essential Community services or facilities including, but not limited to, roads, law enforcement and fire protection services, schools, parks, sanitary facilities, water and flood control.
- Policy 3-7. The location, timing and extent of growth shall be guided through capital improvements programming and financing (i.e., a capital improvement program, assessment districts, impact fees, and developer contributions) to prevent infrastructure, facility and service deficiencies.



- Policy 3-8. Infilling of already developed areas shall be encouraged. Proposals that would prematurely extend development into areas lacking requisite services, facilities and infrastructure shall be opposed. In accommodating new development, preference shall generally be given to vacant or under-used sites within urbanized areas, which have necessary utilities installed with available remaining capacity, before undeveloped suburban lands are utilized.
- Policy 3-9. Areas not suitable for urban development because of the lack of availability of public facilities shall remain in their present use until the needed infrastructure is or can be assured of being provided.
- Policy 3-10. The extension of urban services into agricultural areas outside the Urban Limit Line, especially growth-inducing infrastructure, shall be generally discouraged.
- Policy 3-11. Urban uses shall be expanded only within an Urban Limit Line where conflicts with the agricultural economy will be minimal.
- Policy 3-12. Preservation and buffering of agricultural land should be encouraged as it is critical to maintaining a healthy and competitive agricultural economy and assuring a balance of land uses. Preservation and conservation of open space, wetlands, parks, hillsides and ridgelines should be encouraged as it is crucial to preserve the continued availability of unique habitats for wildlife and plants, to protect unique scenery and provide a wide range of recreational opportunities for County residents.
- Policy 3-13. Promote cooperation between the County and cities to preserve agricultural and open space land.
- Policy 3-14. Protect prime productive agricultural land from inappropriate subdivisions.
- Implementation measure 3-m. Review and amend as necessary all adopted fee schedules to ensure that they meet the cost of planned improvements. In conjunction with the County's CEQA mitigation monitoring program, assess and monitor mitigation measures and consider adopting other development is paying its share of the costs associated with new growth.
- Implementation measure 3-s. Establish standards and policies designed to protect the economic viability of agricultural land which may include, but not necessarily be limited to, preservation agreements, conservation easements, clustering, and establishment of agricultural mitigation fees.
- Implementation measure 3-t. Enforce the restrictions on open hillsides and significant ridgelines in the Open Space Element and protect hillsides with a grade of 26 percent or greater through implementing zoning and other appropriate measures and actions.

- Implementation measure 3-u. To the extent feasible, enter into preservation agreements with cities designed to preserve land for agriculture, open space, wetlands or parks.
- Implementation measure 3-v. To the extent legally permitted, advise LAFCO to (a) respect and support the County's 65/35 Preservation Standard, Urban Limit Line and growth management standards when considering requests for incorporation or annexation to cities or service districts, (b) apply the stricter of the growth management standards of either the County, the incorporating city or the annexing city or service districts, and (c) require unincorporated land located within the Urban Limit Line that is included in the incorporation of a new city or annexed to a city to provide a fair share of affordable housing when and if such land is developed.

### **Community Identity and Urban Design**

- Policy 3-18. Flexibility in the design of projects shall be encouraged in order to enhance scenic qualities and provide for a varied development pattern.
- Implementation measure 3-w. Within the Urban Limit Line, maintain visual separations between communities where the opportunity still exist.
- Implementation measure 3-z. Initiate and enforce, if necessary, specific development standards for both proposed and existing businesses to achieve appropriate landscaping, design and sign structures.

### **Residential Uses**

- Policy 3-20. The predominantly single family character of substantially developed portions of the County shall be retained. Multiple-family housing shall be dispersed throughout the County and not concentrated in single locations. Multiple-family housing shall generally be located in proximity of facilities such as arterial roads, transit corridors, and shopping areas.
- Policy 3-21. Housing opportunities for all income levels shall be created. Fair affordable housing opportunities should exist for all economic segments of the County.
- Policy 3-22. A diversity of living options shall be permitted while ensuring community compatibility and quality residential development.

- Policy 3-23. Housing opportunities shall be improved through encouragement of distinct styles, desirable amenities, attractive design and enhancement of neighborhood identity.
- Policy 3-24. Innovation in site planning and design of housing developments shall be encouraged in order to upgrade quality and efficiency of residential living arrangements and to protect the surrounding environment.
- Policy 3-26. Existing residential neighborhoods shall be protected from incompatible land uses and traffic levels exceeding adopted service standards.
- Policy 3-27. New residential development shall be accommodated only in areas where it will avoid creating severe unmitigated adverse impacts upon the environment and upon the existing community.
- Policy 3-28. New housing projects shall be located on stable and secure lands or shall be designed to mitigate adverse or potentially adverse conditions. Residential densities of conventional construction shall generally decrease as the natural slope increases.

#### **Business and Employment Uses**

- Policy 3-31. Commercial areas of appropriate size and location shall be provided to accommodate the needs of the present and anticipated population in each subregion or community of the County.
- Policy 3-32. Well-defined commercial areas oriented to community shopping shall be provided in the County.
- Policy 3-33. Local shopping facilities shall be distributed and spaced at intervals to accommodate the requirements of residential neighborhoods, minimize travel times, and reduce energy costs.
- Policy 3-36. New local convenience development shall be discouraged except as provided in this plan. ("Strip commercial" shall be generally defined as commercial development of shallow depth limited to the parcels fronting on a street and extending in a linear manner for a considerable distance.)
- Policy 3-37. Business and professional office development shall be encouraged in areas designated for commercial land use within shopping areas and where a transitions or buffer use is appropriate between commercial and residential areas.



- Implementation measure 3-b. During project review, require that proposed uses on the edges of land use designations be evaluated to ensure compatibility with adjacent planned uses.
- Implementation measure 3-c. Where appropriate, require the dedication of deeded development rights to the County (or cooperate in dedication to other public agencies) for lands to be protected as open space.
- Implementation measure 3-d. Review proposed land development projects for consistency with land use designations and relevant policies and standards of each Element of the General Plan.

## **REGIONAL PLANS AND POLICIES**

Several regional plans provide policy direction for development in the planning area.

- The Association of Bay Area Governments (ABAG) has prepared a plan entitled Housing Needs Determinations: San Francisco Bay Area, which that addresses regional "fair share" housing allocations. The relevant policies of this plan are addressed in Chapter 14, "Population and Housing".
- The EBRPD's Master Plan 1989 provides for regional open space and trails development. The relevant policies of this plan are addressed in Chapter 5, "Public Services and Utilities".
- The Metropolitan Transportation Commission (MTC) is responsible for planning for regional transportation and transit in the San Francisco Bay Area. The relevant policies are addressed in Chapter 6, "Circulation".
- The Bay Area Air Quality Management District (BAAQMD) has recently released a draft air quality management plan that was prepared in cooperation with ABAG and MTC to address attainment of federal and state air quality standards. The relevant policies of the plan are addressed in Chapter 7, "Air Quality".
- The Tri-Valley Wastewater Authority plans to build regional facilities to consolidate and export wastewater to Central San for treatment and disposal in Suisun Bay rather than San Francisco Bay, as is presently done by several local wastewater disposal districts. This plan is discussed in Chapter 5, "Public Services and Utilities".
- The County has an integrated waste management plan that addresses solid, liquid, and hazardous waste treatment and disposal on a countywide basis. This plan is discussed in Chapter 5, "Public Services and Utilities".
- The San Francisco Bay RWQCB administers the NPDES for the region. This is addressed in Chapter 10, "Hydrology and Water Quality".

## **Local Agency Formation Commission**

California state law has mandated the establishment of LAFCOs to administer the incorporation and annexation of cities and special services districts in California. The Contra Costa County LAFCO and the Alameda County LAFCO boards represent local County and city governments and are charged with establishing spheres of influence that represent ultimate and logical boundaries for city and service area annexations. In addition, applications to extend city boundaries or services are reviewed by the LAFCO in which the city or special service district is located. Before approving boundary changes, the LAFCOs are required to make findings regarding orderly development and the efficient provision of services, logical boundaries, and preservation of prime agricultural land from premature development. A plan for the provision of services must be approved for each application that addresses service standards and how these services would be financed.

### **Special District Spheres of Influence**

Implementing the project would require the extension of a number of public facilities and services into the planning area. The providers of each of these services will be required to extend or expand their sphere of influence and annex the planning area into their district boundaries before they can provide these services. The relevant sphere of influence and annexations that would be needed are addressed in Chapter 5, "Public Services and Utilities".

### **San Ramon Sphere of Influence Expansion and Potential Annexation**

The City of San Ramon has considered an eventual expansion of their sphere of influence and possible annexation of Dougherty Valley. The City is presently processing a specific plan for development in the planning area. However, the city has filed no applications with the Contra Costa County LAFCO. This EIR anticipates the expansion of the San Ramon SOI consistent with urban service district SOIs.

# **IMPACTS AND MITIGATION MEASURES ASSOCIATED WITH THE PROJECT**

## **Methodology and Significance Criteria**

### **Methodology**

This land use evaluation is based on field visits, aerial photographs, and maps of the planning area and vicinity, the DVSP, the Contra Costa County General Plan, applicable plans of surrounding jurisdictions, the California Important Farmlands Inventory Maps, and other secondary sources.

The impact analysis for this section is based on a qualitative and quantitative comparison of proposed DVSP land uses and their relationship to existing and planned land uses, as well as relevant land use plans and policies of the County and other applicable agencies.

### **Significance Criteria**

This section uses the criteria from Appendix G (Significant Effects) and Appendix I (Environmental Checklist) of the State CEQA Guidelines and standard professional practice to determine the level of significance of an environmental impact. An impact is considered significant if the project would:

- conflict with adopted Contra Costa County environmental plans and goals, as expressed in the Contra Costa County General Plan land use element;
- convert prime agricultural land to nonagricultural use or impair the agricultural productivity of prime agricultural land;
- convert substantial amounts of non-prime, but important, agricultural lands from agricultural to urban uses.
- result in substantial alteration of existing and planned land uses of the planning area;
- conflict with existing and planned land uses of the planning area;
- result in the substantial conversion of open space or agricultural lands into urban or suburban land uses;
- conflict with text or map policies or designations of any applicable local general plans, community plans, or zoning or with land use provisions of any applicable regional plans; or



- contribute substantially to adverse cumulative regional land use impacts.
- conflict with or exhibit land use incompatibilities with adjacent existing or approved land development.

### Interpretations of General Plan Goals and Policies

In many places, this EIR examines the extent to which the project advances the various goals, policies, or implementation measures of the General Plan. Although the project appears to be consistent with the General Plan, there are expected to be instances where the County will be required to balance various goals and policies in deciding whether to approve the project. For example, the project will clearly advance the General Plan's goals for the provision of housing in the close proximity to jobs, but at the same time will convert significant amounts of open space to urban use. This does not mean that the project is inconsistent with the General Plan's goals and policies regarding open space. It simply means that the project site is of more value to the County for its housing needs, while other property in the County (especially that located outside the ULL) may be more valuable as open space.

This flexible interpretation of the General Plan's goals and policies is supported by the general plan itself, which states (on pages 1-8 and 1-9):

A **goal** statement sets the direction for more specific policies and implementation programs. A goal is an ideal future end, condition, or state . . . toward which planning measures are directed. A goal is generally not quantifiable, time dependent or **suggestive of specific actions for its achievement.**

A **policy** is a specific statement intended to guide decision making. . . . Decisions as to whether a particular action, program or project is consistent with this general plan will consider whether **all** aspects of a future action will further the objectives and policies of this general plan without obstructing the attainment of these policies. . . .

The policies expressed in this general plan are intended to be part of an integrated document encompassing concerns which are both compatible and competing, and it is **inappropriate to assess consistency of a singular policy without reference to this framework. . . . At the general plan level, policies are not static as ironclad regulations** (emphasis supplied).

The project is inconsistent with existing county general plan land use and zoning designations and other portions of the general plan text. This is because a GPA addressing and resolving any consistency considerations is part of the project. The DVSP has been designed to implement the general plan consistently with its overall goals and policies.

## **Project-Related Impacts**

### **Impact: Inconsistency with San Ramon General and Specific Plans**

The project would be inconsistent with the City of San Ramon's current General Plan. However, the City of San Ramon is currently processing a General Plan amendment and specific plan for the Dougherty Valley. The outcome of that process may be designations similar to those proposed by the DVSP. In any event, the project is not under the jurisdiction of the City of San Ramon. Therefore, any inconsistency with the City of San Ramon's planning designations would not result in an environmental impact.

This impact is considered less than significant because the project is not under the jurisdiction of City of San Ramon, yet is generally compatible with the overall land use goals of the city general plan and the development program expressed in the city specific plan.

### **Mitigation Measure**

No mitigation is required because inconsistency with the San Ramon general and specific plans are considered less than significant.

### **Impact: Conversion of Substantial Portions of County's Stock of Convertible Land to Urban Use**

The Contra Costa County General Plan states that 144,000 acres of land within the ULL has already been converted to urban uses. To comply with the 65/35 LPS, only 24,000 more acres within the ULL may be converted to urban uses (and only if the GPAs required for these conversions are approved) for a total of 168,000 acres, or 35% of the County's total acreage.

While it would not conflict with the 65/35 LPS, implementing the project would represent a conversion of approximately 2,700 acres, or 11%, of the total County land that can foreseeable be converted to urban uses. The proportion of land proposed to be converted to urban uses compared to the amount of land remaining in the county for conversion to urban uses is considered substantial for a single project. The DVSP requires that at least 55% of the Shapell and Windemere properties are retained in open space, parks, and recreational uses.

Although this impact can be partially mitigated by the retention of up to 55% of each landowner's property in open space uses, the project would still result in the conversion of 2,700 acres, representing 11% of the remaining non-urban land in the 35% urban area to urban uses while "a substantial portion of this land shall be retained for non-urban uses such as open space, parks, and recreational uses".



This impact is considered significant because the project would convert 11% of the remaining non-urban land within the ULL to urban land.

### **Mitigation Measures**

- 5.28: This measure to provide funding for management of open space is described in Chapter 5, "Public Services and Utilities".
- 11.2: This measure to reduce habitat fragmentation by purchasing or acquiring a conservation easement or other means of protection from development is described in Chapter 11, "Biological Resources".

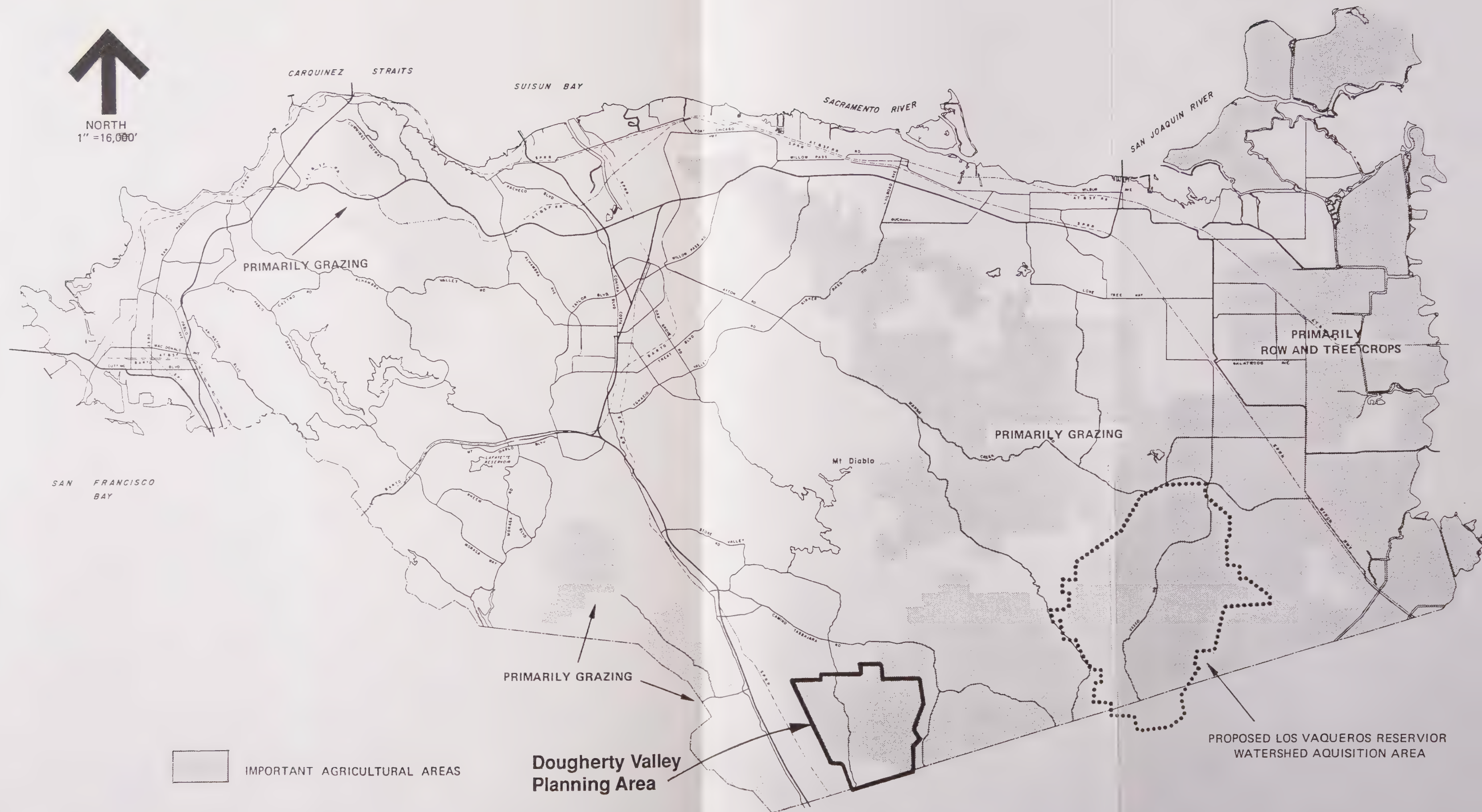
Implementing mitigation measures 5.28 and 11.2 would substantially reduce this impact, but not to a less-than-significant level because they would not eliminate a net loss of regional agricultural land and open space. Therefore, this impact is considered significant and unavoidable.

### **Impact: Conversion of Approximately 6,000 Acres of Nonprime but Important Agricultural Land to Urban and Open Space Uses**

Implementing the project would convert approximately 6,000 acres of nonprime but important agricultural land to urban uses and open space uses. Although this land is not classified as prime farmland by the California Department of Conservation, the county has identified it as important farmland (Figure 4-7). The clay soils on gentle slopes along Alamo Creek and in the vicinity of the firing range on the Camp Parks portion of the planning area are considered prime agricultural soils (Myers pers comm). The extent of these soils is shown in Figure 9-9 of Chapter 9, Soils and Geology. The project would convert large amounts of this locally important farmland to urban and open space uses. Of the approximately 6,000 acres that comprise the planning area, 2,000 acres have been mapped as "farmland of local importance" and the remaining 4,000 acres are mapped as "grazing land" (Figure 4-8) (California Department of Conservation 1986). Farmland of local importance has been defined by Contra Costa County as "lands within the Tassajara area, extending eastward to the county boundary. . . [that] are capable of producing dryland grain on a two-year summer fallow or longer rotation with volunteer hay and pasture." (California Department of Conservation 1988). Dougherty Valley is considered a unique and significant resource as high-quality grazing land that has supported commercial cattle raising operations for over 100 years (EIP Associates 1991). Essentially all the farmland of local importance and about a quarter of the grazing land would be converted to urban uses under the DVSP. Limited areas of the undeveloped open space lands would remain available for controlled grazing.

This impact is considered significant because the conversion would affect substantial farmland acreage. This is true even if the project partially mitigates this conversion by allowing some grazing in undeveloped open space. However, the minor grazing allowed on these remaining undeveloped open space areas would be relatively inconsequential from an





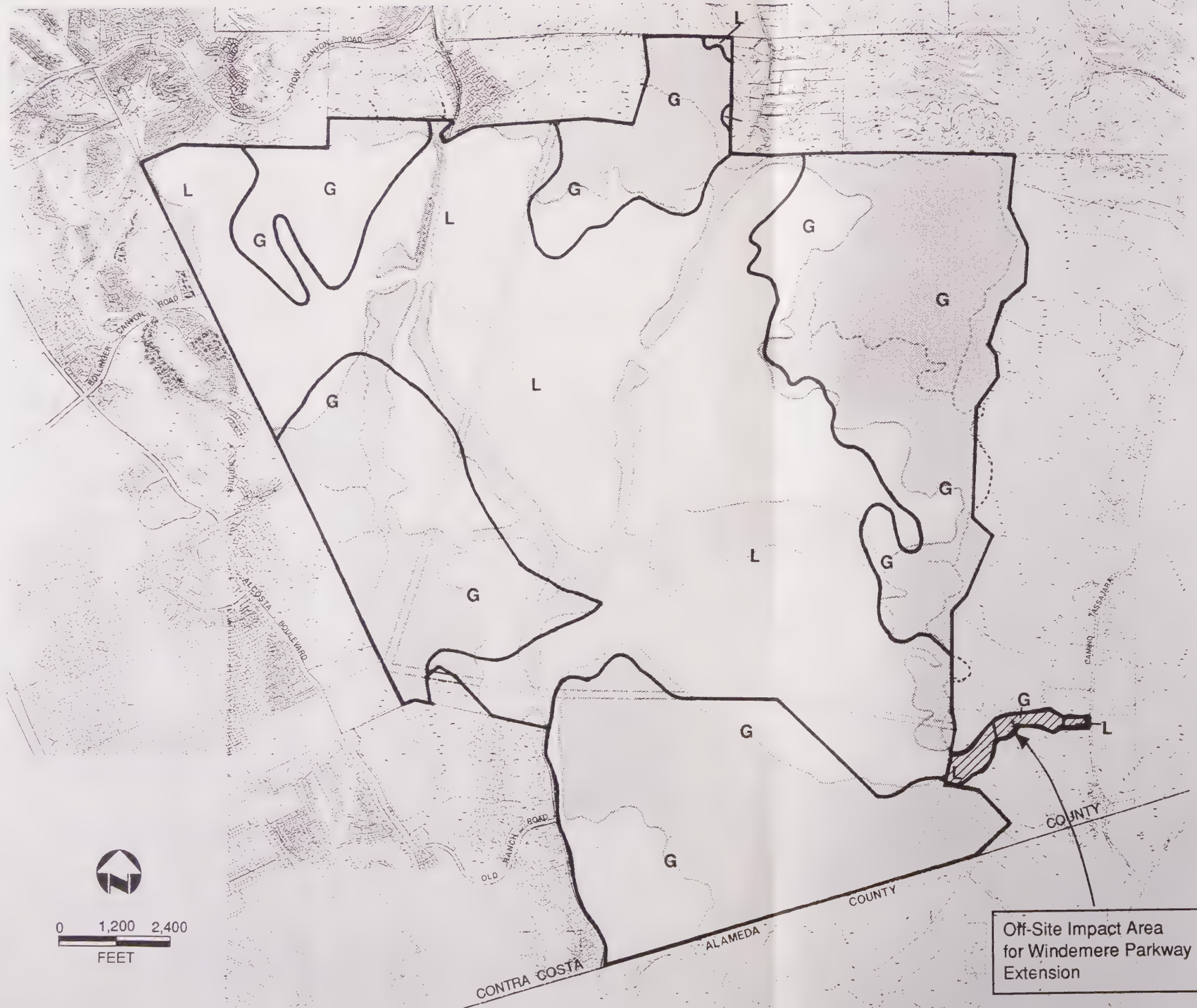
**FIGURE 4-7. CONTRA COSTA COUNTY  
IMPORTANT AGRICULTURAL LANDS**

Source: Contra Costa Community Development Department





Figure 4-8.  
Important Farmlands  
in the Dougherty Valley  
Planning Area



**LEGEND**

- G** Grazing Land  
Land on which the existing vegetation is suited to the grazing of livestock
- L** Farmland of Local Importance  
Land capable of producing dry land grain on a two-year summer fallow or longer rotation  
Land Capability Classes I, II, III, and IV and lack irrigation water
- Developed Impact Area (Mass Grading)
- Areas in Which Grading Will Be Limited to Development of Special Facilities

Source: California Department of Conservation  
Contra Costa County  
Important Farmland Map July 1986





agricultural productivity perspective. The loss of a substantial amount of farmland of local importance is considered cumulatively significant based on the importance of grazing to the local economy and on expressed general plan policy (see "Cumulative Impacts" below). This impact is therefore considered significant and unavoidable.

### **Mitigation Measure**

No mitigation is available to mitigate the direct impact of conversion of 6,000 acres of important nonprime farmland to urban development and open space uses. Project alternatives that would reduce the extent of this impact are described in Chapter 16.

### **Impact: Potential Internal Land Use Incompatibility of Residential Land Uses with Camp Parks**

The proposed residential uses of the planning area would be potentially incompatible with the military training activities on the Camp Parks portion of the planning area (Figure 4-9). These incompatibilities include impacts associated with noise (such as aircraft and helicopter fly-overs and artillery and demolition exercises) and safety (associated with potential trespassing violations by planning area residents onto Camp Parks). Noise impacts are addressed in Chapter 8, "Noise". The following discussion relates to residential safety considerations.

Although the Camp Parks portion of the planning area is designated by the DVSP as an open space buffer and a site for a potential public institutional use such as a community college, the Army has no immediate plans to abandon its current uses for that area or the remainder of Camp Parks. Military training activities are expected to increase on the site in the foreseeable future (Cooke pers. comm.).

If the proposed land transfer between Windemere and the Army result in development of Windemere Parkway along this internal edge, some separation would be provided by the arterial road itself and the less intensively used north-facing hillslopes in the training area. In addition, the Army has reviewed the placement and safety features incorporated into the design of their firing range and have concluded that there is "no cause for any concern that a projectile fired on a Camp Parks range will accidentally strike any portion of [the Windemere] property" (Rafferty pers. comm.). However, access to the Camp Parks property could be relatively easy for trespassing planning area residents (especially children).

This impact is considered significant because it would create a conflict between Camp Parks and residential land uses.

### **Mitigation Measure**

- 4.1: The project proponents should install security fencing around the northern perimeter of the Camp Parks portion of the planning area to meet the location

and materials specifications of the Army. The fencing should be installed regardless of the outcome of the proposed land transfer. It should be of sufficient height and strength to exclude vehicles and climbers and should include notices prohibiting trespassing.

- 8.5 or 8.6: These measures to locate new noise-sensitive land uses on the site so that noise from Army activities does not exceed County noise standards or to relocate noise-generating activities are described in Chapter 8, "Noise".

Implementing mitigation measures 4.1 and 8.5 or 8.6 would reduce impacts to less-than-significant levels because trespassing would be curtailed and noise levels in residential areas would be reduced to acceptable levels.

### **Impact: Potential Incompatibility with Adjacent Land Uses**

The DVSP proposed land uses would result in a change in existing land use relationships and may be considered incompatible with the existing and planned adjacent land uses. The planning area is located across a ridge from most developed parts of San Ramon. In addition, an extensive part of the perimeter of the planning area is proposed as open space or park and recreation land uses that are considered compatible with adjacent existing open space, grazing, and dryland farming uses (see Figure 4-\*).

However, there are several incompatible land use relationships along the project perimeter. In the northwest corner of the planning area, existing multiple-family housing in San Ramon will adjoin proposed single-family medium-density residential development. A similar land use relationship would exist where Bollinger Canyon Road enters the planning area. At the southeast edge of the planning area, existing single-family residential dwellings would be overlooked by proposed multiple-family development along Dougherty Road.

Along the southern boundary of the planning area, the Camp Parks interface provides another potential incompatibility. Since the ultimate land use for the Contra Costa County portion of Camp Parks is proposed by the DVSP to be institutional and open space and the ultimate land uses for the Alameda County portion of Camp Parks are unknown, a potential for incompatibility exists. However, it is likely that Camp Parks would remain, shifting the potential for incompatibility to the west and north boundary of Camp Parks (see "Impact: Potential Internal Land Use Incompatibility of Residential Land Uses with Camp Parks" above).

At the southeast corner of the planning area, the proposed Windemere Parkway extension through grazing and dryland farming areas and past rural residences to Camino Tassajara would be an incompatible land use. On the eastern boundary of the planning area, an offsite grazing area would be in close proximity to single-family medium-density residential development proposed by the DVSP. However, the Tassajara Valley area is currently the subject of a proposal to allow residential uses as part of the Tassajara Valley Property Owners Association (TVPOA) proposal being considered by Contra Costa County.









On the northern perimeter of the planning area, existing rural residences on 5-acre parcels or larger lots in the Lawrence Road area are adjacent to single-family medium-density residential development proposed by the DVSP.

This impact is considered significant because it would create a close spatial relationship of dissimilar land uses in the above locations around the perimeter of the project. The inconsistency between land uses could result in future land use conflicts between existing and future residents adjacent to the planning area and future residents of the planning area. This impact can be partially mitigated, but not to less than significant. This impact is considered significant and unavoidable.

### **Mitigation Measure**

- 4.2: The project proponents should design neighborhoods in the vicinity of the incompatible land use relationship areas to reduce or eliminate potential conflicts through implementation of DVSP Land Use Element Policy LU-1. This policy describes the target density and unit transfer concepts and their use to create distinctive and sensitively integrated neighborhoods. This policy is reinforced by Housing Element Policy H-2 to ensure that homes are consistent with the character of surrounding areas. These policies should be implemented by preliminary development plans that affect the land use incompatibility areas identified in Figure 4-9 and described above.

The preliminary development plans should indicate how the identified land use incompatibilities will be addressed through use of density, intensity, setbacks, buffering, landscaping, fencing, grading, natural topographic features, building orientation, urban design solutions, and other approaches to sensitive site planning of the affected land use interface. The Community Development Department would be responsible for monitoring implementation of this mitigation measure at each more detailed stage of development from final development plans, tentative and final subdivision maps, to grading and building permits.

Implementation of mitigation measure 4.2 would substantially mitigate the identified land use incompatibilities, but not to less than significant.

### **Impact: Potential Internal Incompatibility of Residential Land Uses with Existing Electric Transmission Lines**

Residential land uses are proposed adjacent to ROWs that contain PG&E transmission lines. These land uses may be seen to be incompatible because residents in dwellings closest to the transmission line ROW would unknowingly be exposed to electromagnetic fields (EMFs), of which the human health effects are presently unknown. This issue is addressed fully in Chapter 13, "Electromagnetic Fields".



This impact is considered significant because it would expose planning area residents to EMFs without their knowledge.

#### **Mitigation Measure**

- 13.1 and 13.2: These measures to measure or model the electric and magnetic field strengths and advise affected residents of adverse potential health effects are described in Chapter 13, "Electromagnetic Fields".

Implementing mitigation measures 13.1 and 13.2 would reduce this impact to a less-than-significant level because potential residents would be notified of this issue.

#### **Impact: Potential Insufficiency of Commercial Areas to Serve Residential Needs**

The project would provide for up to 380,000 square feet of convenience-oriented neighborhood commercial development in three locations. The primary location designated by the DVSP for commercial and possible professional office development would be in the village center. Two other centrally located neighborhood commercial sites are designated in the DVSP.

These commercial areas are intended to serve only the immediate convenience needs of project residents, but may not be sufficient to meet residents needs for community or regional commercial services. Contra Costa County General Plan policies 3-3, 3-31, and 3-33 promote a balanced approach to new residential and employment opportunities and accommodate the commercial needs of population in each subregion or community to minimize travel times and reduce energy costs.

The DVSP provides for well-located commercial areas and offers the potential for more intensive commercial development within the village center should this be warranted. These commercial areas are to be developed under design guidelines that would promote their land use compatibility with adjacent residential land uses. Additionally, a market study conducted by the project proponents concluded that community and regional retail development elsewhere in the Tri-Valley region, either existing or proposed, is expected to be sufficient to meet the needs of Dougherty Valley residents and actually limits the commercial market demand to 300,000-350,000 square feet of convenience retail space, which is planned for within the DVSP (ROMA Design Group 1990).

This impact is considered less than significant because convenience commercial needs can be met within the planning area under the DVSP and more community and regional-scale commercial needs can be met by commercial centers located in adjacent communities.

#### **Mitigation Measure**

No mitigation is required because this impact is considered less than significant.

## **Cumulative Impacts**

### **Impact: Cumulative Loss of Agricultural Land and Open Space**

The project is one of several large-scale development projects that have been recently approved, are being processed, or are considered "reasonably foreseen" in the Tri-Valley region. The discussion of cumulative projects that have been used for this impact analysis is contained in Chapter 17, "Cumulative Impacts".

The proposed project, together with other proposed projects listed in Appendix B, would result in the urbanization of large areas of open space and would contribute to the cumulative loss of agricultural land and open space in the Tri-Valley region. Of the approximately 6,000 acres that comprise the planning area, 2,000 acres have been mapped as "farmland of local importance" and the remaining 4,000 acres are mapped as "grazing land" (California Department of Conservation 1986). Essentially all the farmland of local importance and about a quarter of the grazing land would be converted to urban uses under the DVSP. Limited areas of the undeveloped open space lands would remain available for controlled grazing.

Although the DVSP partially mitigates the direct conversion impact by encouraging continued grazing on suitable undeveloped open space lands that will surround the developed area, this conversion represents a substantial amount (at least 4%) of the remaining land of local importance in Contra Costa County (California Department of Conservation 1988).

According to EIP Associates (1991), "agricultural grazing land and open space in Contra Costa County is being converted to urban uses as a rapid rate", and "even though the Dougherty Valley represents less than one percent of the Bay Area's range land, continued losses along the edge of the metropolitan area eventually would reduce the livestock industry below critical mass" (ROMA Design Group 1990).

This impact is considered significant because conversion of 6,000 acres of agricultural land, including 2,000 acres of "farmland of local importance", represents a substantial contribution to the cumulative effect of other such conversions on a regional basis.

### **Mitigation Measure**

- 5.28: This measure to provide funding for management of open space is described in Chapter 5, "Public Services and Utilities".
- 11.2: This measure to reduce habitat fragmentation by purchasing or acquiring a conservation easement or other means of protection from development is described in Chapter 11, "Biological Resources".

Implementing mitigation measures 5.28 and 11.2 would substantially reduce this impact, but they would not eliminate a net loss of regional agricultural land and open space. Therefore, this impact is considered significant and unavoidable.

**Impact: Cumulative Pressure for Urban Growth beyond the Urban Limit Line**

An amendment to the ULL boundary as proposed by this project could set a precedent for future amendments to the boundary to facilitate additional urban development. To date, there have not been any approved changes to the ULL, though the Board has indicated its intent to consider three minor changes (Tomas pers. comm.).

This proposed amendment is a minor adjustment that would have a net effect of a slight reduction (37 acres) to the non-urban area in the County. Because specific findings of fact are required by the general plan to justify amendments to the ULL, and because future projects would be required to justify any such proposals based on the unique circumstances, the project is not anticipated to contribute substantially to a cumulative adverse effect associated with any future amendments to the ULL.

This impact is considered less than significant because future ULL proposals would be addressed on a case-by-case basis.

**Mitigation Measure**

No mitigation is required because this impact is considered less than significant.



## Chapter 5. Public Services and Utilities

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### SETTING

#### Sewerage System

The information presented in this section is summarized from Brown and Caldwell's Dougherty Valley Water, Wastewater, and Recycled Water Facilities Plan (1992) (Appendix E).

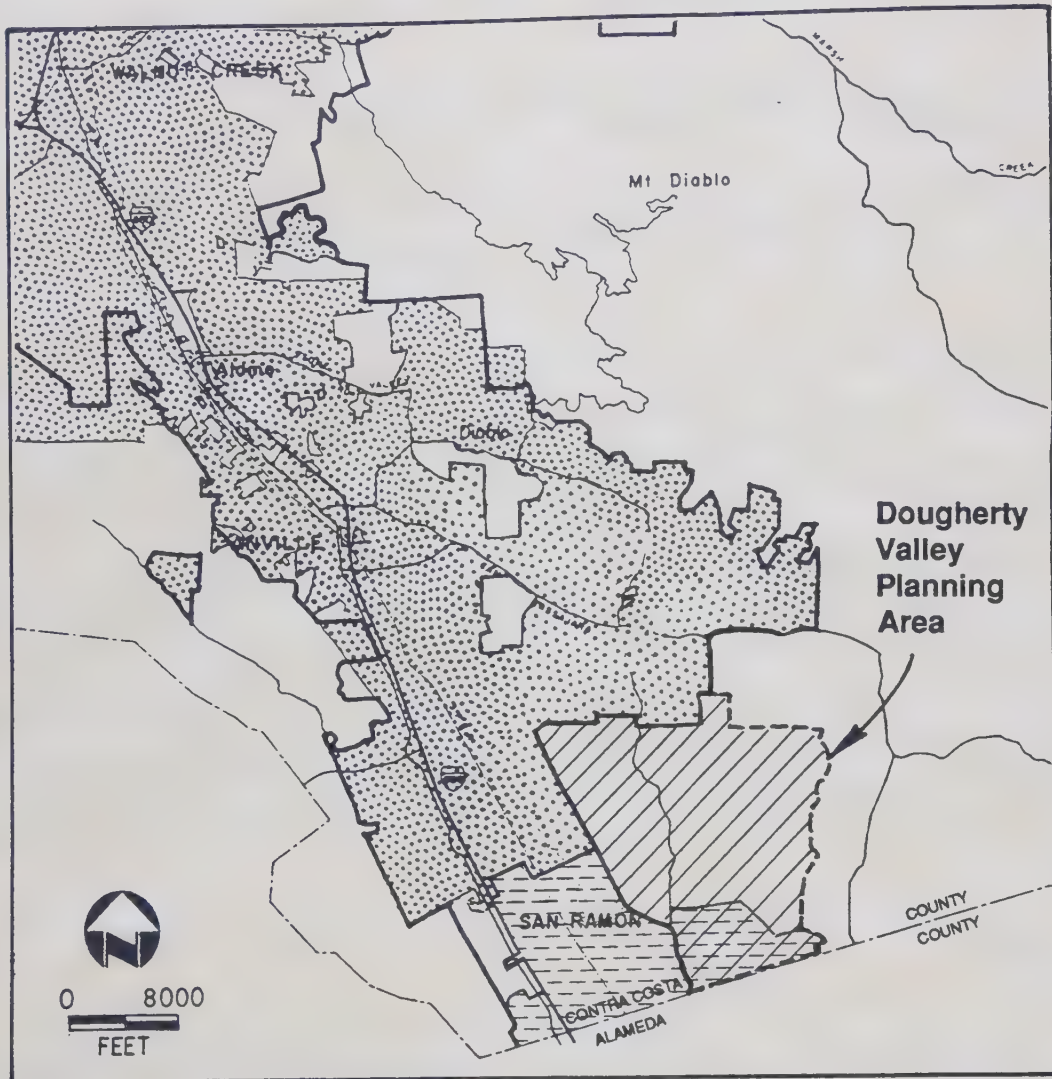
Although the Dougherty Valley planning area is not currently within the service area or sphere of influence of a sewage treatment and collection agency, it is between the service areas of the Central Contra Costa County Sanitary District (Central San) and the DSRSD (EIP Associates 1991). As discussed in the "Impacts and Mitigation Measures" section, Brown and Caldwell (1992) considered two scenarios for extending wastewater collection and treatment services to the planning area involving these two agencies. Before it could receive service from DSRSD or Central San, the planning area would have to be added to one of the agencies' sewer service Spheres of Influence and annexed to the agency's sewer service area.

#### Central San

The planning area is not within the Sphere of Influence of Central San, which provides wastewater service to all cities and unincorporated areas of central Contra Costa County (Figure 5-1) (Contra Costa County Community Development Department 1991).

**Treatment Facilities.** Central San operates a wastewater treatment plant at the intersection of State Route 4 and I-680. The plant treats approximately 38 million gallons per day (mgd) average dry weather flow, which is then transported to Suisun Bay for disposal (EIP Associates 1991). Solids generated by the treatment process are incinerated at the treatment plant site. The plant was recently expanded from a capacity of 35 mgd to 45 mgd, which will enable the district to accommodate approximately 100,000 more people within its service area boundaries (Contra Costa County Community Development Department 1991). Peak flows beyond the plant capacity can be diverted to holding ponds for later processing. Other planned improvements will bring the wet weather flow capacity from 195 mgd to 260 mgd (EIP Associates 1991).

**Collection System.** Central San operates a collection system that includes gravity-flow interceptors, force mains, and pump stations. The facilities that could potentially be affected



#### LEGEND



Central Contra Costa Sanitary District Service Area

Dublin - San Ramon Service District Service Area

District Sphere of Influence Boundary

**Figure 5-1. Wastewater Service Districts in the Dougherty Valley Planning Area and Vicinity**

Source: Contra Costa County Community Development Department 1991, Webb pers. comm.

by service to the planning area include the A-line interceptor, San Ramon Valley Interceptor, Larwin pump station, and effluent pumping facilities near Waterfront Road in Martinez.

The A-line and San Ramon Valley interceptors convey wastewater generated within Central San's southern I-680 service area to the wastewater treatment plant. Central San has planned to increase the capacity of the A-line interceptor by 2009 because it anticipates that wet weather flows originating within the district's current service area will exceed the capacity of the interceptor at that time. This increase in capacity will require constructing another interceptor to reduce flows through the current A-line interceptor.

Central San also plans to increase the capacity of its effluent pumping facilities near Martinez to accommodate increasing flows within its boundaries.

### **Dublin-San Ramon Service District**

The DSRSD provides wastewater collection and treatment to the Cities of Dublin and Pleasanton and to approximately half of the City of San Ramon. DSRSD is a member of the Livermore-Amador Valley Water Management Agency (LAVWMA), a joint-powers agency formed in 1974 between the City of Pleasanton, the City of Livermore, and DSRSD. LAVWMA operates a regional pipeline that exports treated wastewater under contract to the East Bay Dischargers System. Treated effluent is pumped by DSRSD and other agencies through a regional pipeline to its junction with the East Bay Dischargers Authority system. LAVWMA's effluent, together with that of the East Bay Dischargers Authority, is then discharged through an outfall in San Francisco Bay.

The peak hydraulic capacity of the regional pipeline is approximately 21 mgd. The three member agencies of LAVWMA are each allocated a portion of the pipeline's capacity. DSRSD's allocation of the total capacity is 4.769 mgd. Based on 1990 data, DSRSD's available capacity was approximately 2.4 mgd, or 2,850 dwelling unit equivalents (DUE). A DUE is the amount of wastewater generated by an average household per day.

DSRSD's collection facilities that could be used to collect planning area wastewater, including pump stations and mains, have been designed to serve customers within DSRSD's existing service area. The planning area is outside DSRSD's service area and Sphere of Influence (Figure 5-1).

### **Tri-Valley Wastewater Authority**

Because the communities served by LAVWMA have grown rapidly, it is anticipated that the regional pipeline described above will reach capacity in the late 1990s or early 2000s. Discharge limitations for San Francisco Bay will prevent further increases in the regional pipeline's discharge capacity. Therefore, DSRSD, Alameda County, and the City of Pleasanton formed the Tri-Valley Wastewater Authority (TWA), in 1986, to study alternative methods to treat and export wastewater from the Livermore-Amador Valley for



disposal. Although it is not within Central San or DSRSD boundaries, the planning area is within the TWA planning area (Figure 5-2). (EIP Associates 1992.)

TWA developed four wastewater treatment and disposal alternatives, an EIR was prepared and certified, and TWA selected one of the alternatives. However, the EIR was challenged in court and deemed inadequate in 1989. TWA recently elected to prepare a subsequent EIR on three alternatives because the alternative that was selected and approved after the previous EIR became infeasible. The draft subsequent EIR, completed on January 31, 1992, considered three alternatives, identifying a preferred alternative. The draft subsequent EIR states that the alternative identified as "Alternative North 3" is the preferred alternative because it is the most feasible economically and would have the least environmental impact of the three alternatives evaluated. (EIP Associates 1992.)

As described in the draft subsequent EIR under "Alternative North 3," up to 40 mgd of wastewater collected in the Dougherty and Livermore-Amador Valleys would be exported to Central San treatment facilities near Pacheco. A portion of Livermore's untreated wastewater would be diverted upstream of the Livermore Water Reclamation Plant and conveyed through a new gravity sewer, the East Valley Interceptor, to a new export pump station north of I-580 and adjacent to the future extension of East Dublin Boulevard and the former Southern Pacific Railroad right-of-way. Similarly, a portion of the untreated flow would be diverted upstream of the DSRSD plant and routed to second new export pump station located adjacent to the existing DSRSD sludge drying beds. The two TWA export pump stations would convey untreated wastewater through an export pipeline to the Central San sewer interceptor near Norris Canyon Road in San Ramon. TWA wastewater would comeingle with Central San wastewater and flow northward to Central San's Pacheco facilities for treatment. Treated effluent would be discharged to Suisun Bay through the existing Central San outfall or reclaimed for industrial or landscape irrigation uses.

Alternative North 3 would require the construction of an emergency storage basin at the Livermore Water Reclamation Plant, a gravity pipeline (the East Valley Interceptor), two export pump stations and accompanying emergency storage basins, a pressure pipeline from Export Pump Station No. 2, and an export pipeline from Export Pump Station No. 1 to junction with the export pipeline (West Valley Interceptor). In addition, Alternative North 3 would require expansion of Central San Interceptor and treatment and outfall facilities, and expansion of collection and equalization facilities at Livermore, Pleasanton, and DSRSD (EIP Associates 1992).

## **Water Supply**

The following information, except where otherwise noted, is summarized from Brown and Caldwell's Dougherty Valley Water, Wastewater, and Recycled Water Facilities Plan (1992), which appears in Appendix E.

The planning area is not entirely within a water agency's service area, although the northwest portion of the Shapell property is within the service area and ultimate service

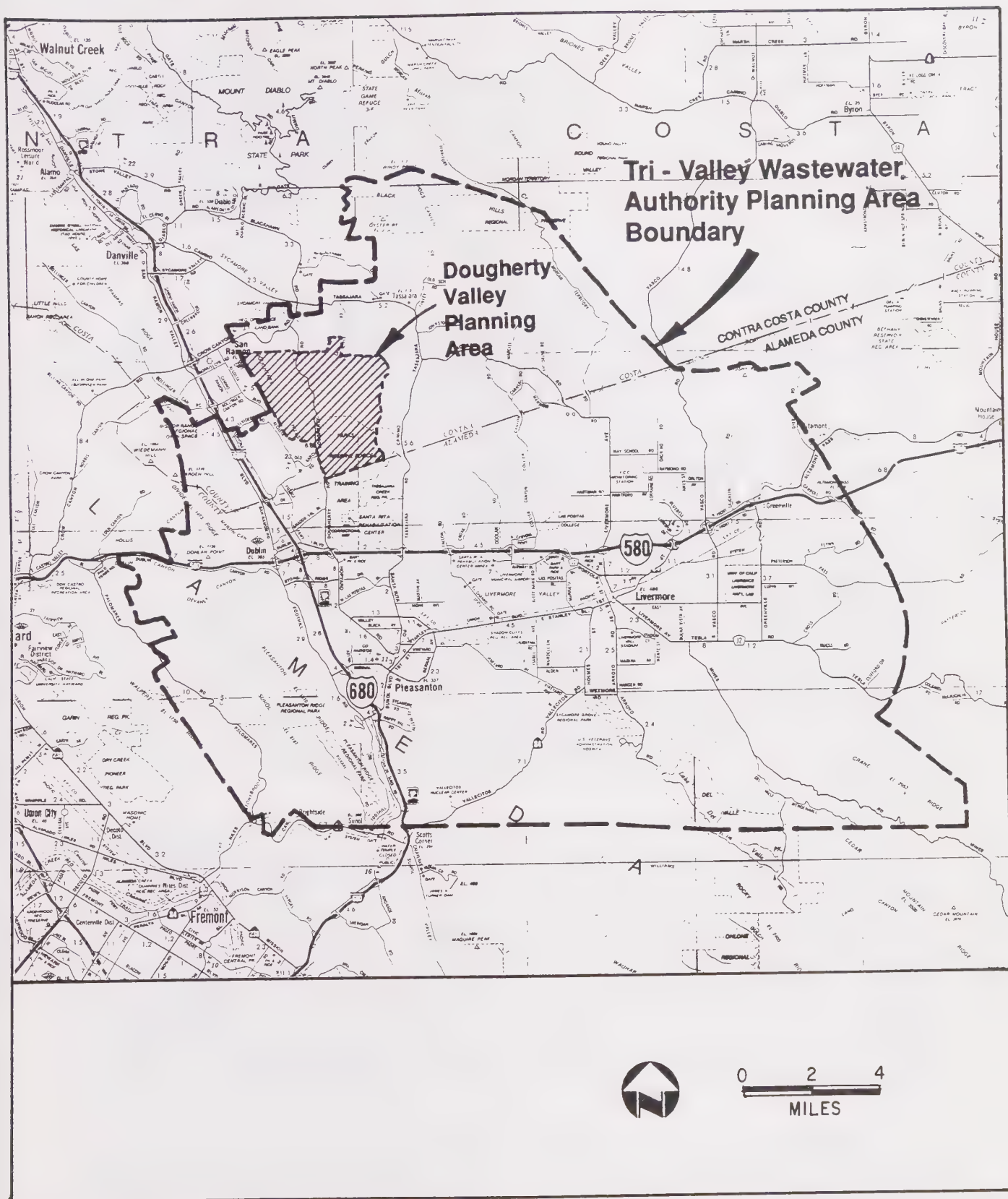


Figure 5-2. Tri - Valley Wastewater Authority Planning Area

Source: EIP Associates 1992



area boundary, but is outside the LAFCO adopted water Sphere of Influence of East Bay Municipal Utility District (EBMUD) (East Bay Municipal Utilities District 1991) (Figure 5-3). EBMUD and DSRSD were considered in this analysis as potentially serving the planning area. Before it could receive water service, most of the planning area would have to be added to the EBMUD or DSRSD water Sphere of Influence and annexed to the service area of the agency providing service.

### **East Bay Municipal Utility District**

EBMUD serves an area of approximately 310 square miles in Alameda and Contra Costa Counties, including 20 cities and 16 communities (East Bay Municipal Utility District 1991).

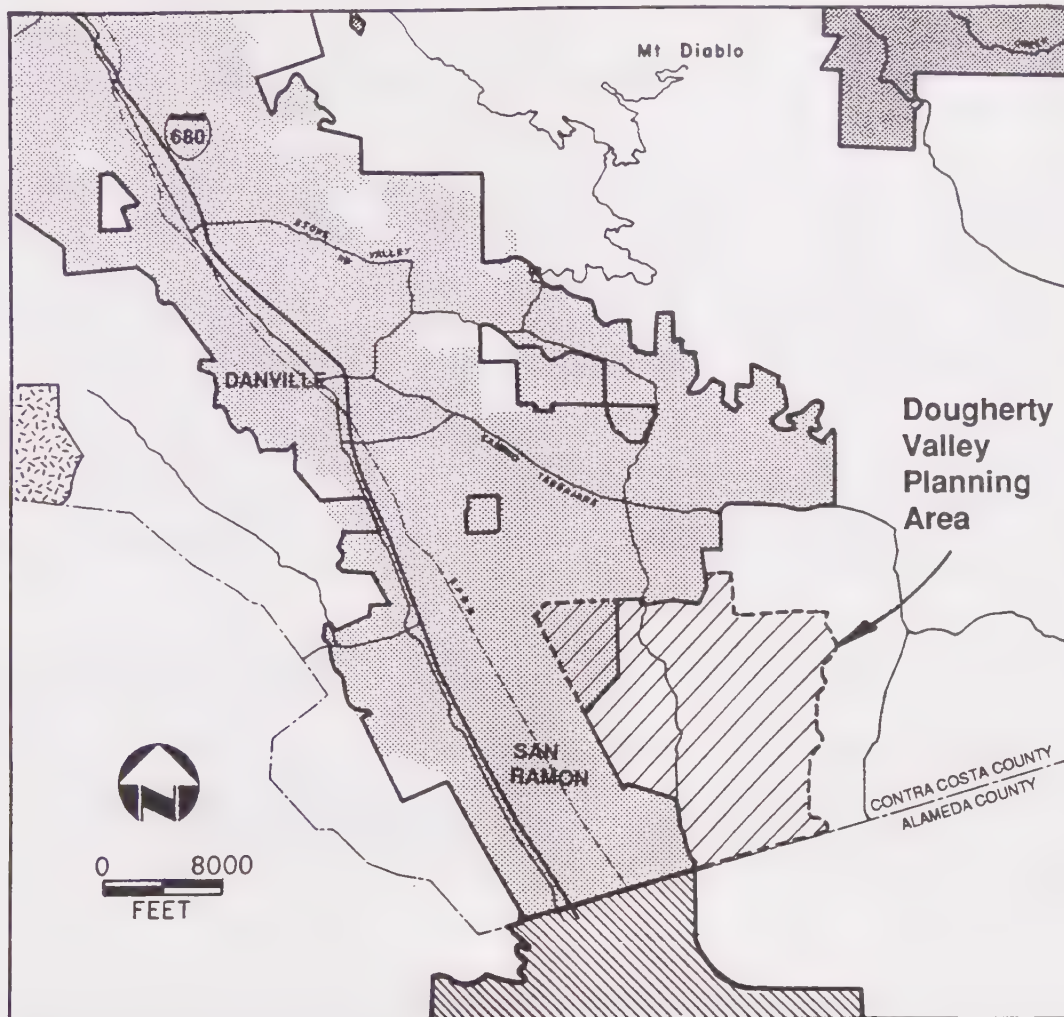
**Water Source.** EBMUD has entitlements to draw water from the Mokelumne and American Rivers (East Bay Municipal Utility District 1991).

The district has water rights to withdraw up to 325 million gallons per day (mgd) of water from the Mokelumne River system. However, during drought years, EBMUD may not be able to pump this much water because of other downstream entitlements. Because many of these other water rights holders have entitlements senior to EBMUD's, EBMUD must allow these users to fulfill their allotments before the district can pump from the river. During drought periods of 2 or more years, EBMUD has been limited to withdrawing as little as 198 mgd because it has had to allow other water rights holders to fulfill their allotments (East Bay Municipal Utility District 1991). EBMUD may also be required to release additional water into the Mokelumne River system in the future depending on the outcome of current litigation. This would probably decrease EBMUD's entitlement to water in drought years.

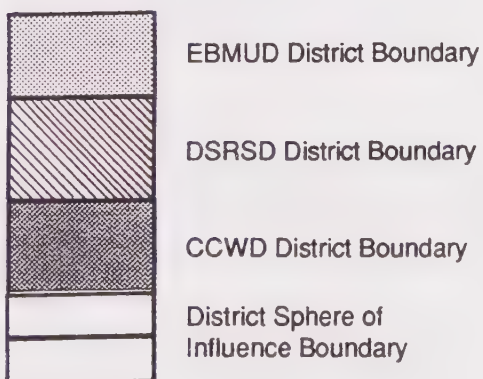
EBMUD's contract with the U.S. Bureau of Reclamation allows it to withdraw up to 150,000 acre-feet of water per year (af/yr) (approximately 134 mgd) from the American River system. EBMUD's contract to this water was challenged in Alameda County Superior Court in 1990 but was upheld. However, the court also set minimum flows that must be present in the lower American River before EBMUD can pump from this source (East Bay Municipal Utilities District 1991). To use this water supply, EBMUD would have to construct an aqueduct from the Folsom South Canal (which originates at Folsom Lake) to its service area, and would probably have to construct additional storage facilities because EBMUD could divert this water only during wet weather when the American River flows are above the minimum levels set by the Alameda County Superior Court. (East Bay Municipal Utilities District 1991.)

**Distribution System.** Components of the EBMUD distribution system that could be affected by extending service to the planning area include the Walnut Creek filter plant; Danville pumping plant; Castenada pumping station; Scenic East pumping station; and storage reservoirs for the San Ramon, Amador, and Scenic pressure zones. EBMUD has planned improvements to all these facilities in the future, except the Scenic East pumping





#### LEGEND



**Figure 5-3. Water Service Districts in the Dougherty Valley Planning Area and Vicinity**

Source: Contra Costa Community Development Department 1991, ROMA Design Group 1990, Webb pers. comm.

station and Amador Zone storage facilities, to serve customers within its existing ultimate service area.

### **Dublin-San Ramon Services District**

DSRSD supplies potable water to the Tri-Valley area in northern Alameda County (Figure 5-3). The district receives its water supply from the Alameda County Water Conservation and Flood Control District No. 7 (Zone 7).

Zone 7 is contracted with the State Water Project (SWP) to supply the Tri-Valley Area. This contract specifies that 37,000 af of water was available to Zone 7 in 1990, with a maximum entitlement of 46,000 af by 1997 (ROMA Design Group 1990). However, this agreement is scheduled to expire on September 1, 1993, and may be renegotiated at that time (Brown and Caldwell 1992).

Zone 7 also obtains water from local ground and surface waters. Zone 7 treats these waters at its Patterson Pass and Del Valle treatment plants. (ROMA Design Group 1990.)

**Distribution System.** The DSRSD distribution system in the vicinity of the planning area will be expanded to serve new development in East Dublin. Development of East Dublin would require distribution mains and pumping stations be connected to the Zone 7 main along I-580. These facilities could also be used to serve the planning area. (Brown and Caldwell 1992.)

### **Reclaimed Water**

The following information is summarized from Brown and Caldwell's Dougherty Valley Water, Wastewater, and Recycled Water Facilities Plan (1992), which appears in Appendix E.

Reclaimed water is wastewater that has undergone treatment at a wastewater treatment plant to make it suitable for reuse. This water is required to meet the State of California Title 22 water quality standards and is typically applied on turf areas and landscaping to decrease demands for freshwater supplies.

EBMUD and DSRSD prepared and signed a memorandum of understanding (MOU) establishing a framework by which they may work together to provide joint potable/reclaimed water services to the areas around the planning area. The MOU also establishes the need for planning period agreements between DSRSD and EBMUD for each planned area of delivery. Under the MOU, EBMUD could supply reclaimed water to the planning area if it is also the potable water supplier. However, DSRSD could agree to provide reclaimed water even if EBMUD were the potable water supplier. If DSRSD provided potable water to the planning area, it would also supply reclaimed water.

## **Drainage System**

Drainage facilities in Contra Costa County are provided by the cities, the County, and the Contra Costa County Flood Control and Water Conservation District (CCCFCWCD). CCCFCWCD collects special assessments to finance drainage improvements in areas with adopted drainage plans, while drainage improvements in areas outside these drainage plan boundaries are financed through development fees allowed by the Subdivision Map Act. The planning area is within an area not currently planned for development in the Contra Costa County General Plan and is not governed by a drainage plan. (Contra Costa County Community Development Department 1991.)

The hydrologic setting and a discussion of the flooding characteristics of the planning area is presented in Chapter 10, "Hydrology and Water Quality".

## **Solid Waste**

A private solid waste collection firm would be contracted to collect solid waste in the Dougherty Valley planning area, and Contra Costa County would be responsible for providing landfill space (Nicholson pers. comm.).

### **Landfills**

Of the five landfills in Contra Costa County, two are currently operating. Based on the current countywide solid waste generation rate of 2,600 tons per day, Contra Costa County's landfills have less than a year of capacity remaining. West Contra Costa Sanitary Landfill has a capacity of 6-9 months and Acme Sanitary Landfill has less than 2 months of capacity remaining. (Nicholson pers. comm.)

The County has recently opened the Keller Canyon landfill and approved the Marsh Canyon landfill. Each of these could add as much as 40 years of landfill life (60-64 million cubic yards) to Contra Costa County's reserve. In addition, Keller Canyon's capacity could be substantially extended if the U.S. Navy approves the use of neighboring lands for this purpose. The Marsh Canyon landfill could be operational in early to mid-1993. (Nicholson pers. comm.)

Because it has been experiencing a shortage of landfill space, Contra Costa County has contracted with Alameda and Solano Counties for landfill space until either Keller or Marsh Canyon landfill are opened. Contra Costa County's contract with Alameda County expired on December 20, 1991. Approximately 245 tons of solid waste per day (tpd) is being trucked to Solano County, which exceeds the contracted amount of 180-190 tpd. Because Contra Costa County is exporting its waste to Solano County in greater amounts than allowed by contract, this year-long agreement will probably expire in August 1992. (Nicholson pers. comm.)



## **Solid Waste Reduction Programs**

Contra Costa County operates a curbside recycling program and is planning to begin a composting program. The recycling program depends on private solid waste collection firms, which would be responsible for collecting business and residential recyclables in the Dougherty Valley planning area. The composting program would divert yard wastes from landfills to be used as fertilizers. The County is operating a demonstration composting program at the inactive Acme Landfill and hopes to initiate a program in the San Ramon area within 2 years. The program would involve providing curbside collection of yard wastes, which would be deposited at the composting facility. After composting, the material would be transported elsewhere to be used as fertilizer. (Nicholson pers. comm.)

## **Solid Waste Collection**

Contra Costa County contracts with several private hauling companies to deliver solid waste collection services to the developed portions of the County. Although the County could allow Valley Waste Management, Inc. to extend service from the City of San Ramon (adjacent to the western boundary of the planning area), it plans to award the planning area solid waste collection duties to a firm by using the bidding process (Smith pers. comm.).

## **Police Services**

The planning area would receive law enforcement service from two agencies. Enforcement of non-traffic-related offenses would be provided by the Contra Costa County Sheriff's Department, and enforcement of traffic-related offenses would be provided by the California Highway Patrol (CHP)

## **Contra Costa County Sheriff's Department**

Non-traffic-related law enforcement service to the planning area would be provided by the Contra Costa County Sheriff's Department (CCCSD). CCCSD provides law enforcement services to the unincorporated areas of Contra Costa County and is contracted to provide law enforcement service to some incorporated areas, such as the City of San Ramon. CCCSD also operates a crime prevention program, which consists of neighborhood watch administration, babysitting seminars, residential and commercial security checks, the DARE (drug abuse resistance education) program for elementary school children, and other services. (Snell pers. comm.)

The planning area would be within the jurisdiction of CCCSD's Valley Substation, which provides service to central Contra Costa County, including the unincorporated areas of Martinez, Concord, Walnut Creek, Lafayette, Alamo, Pittsburg, Clayton, and Tassajara. The Valley Substation is staffed by 27 patrol officers, five sergeants, and 22 deputies, of which five are usually on patrol. This number of positions, which has not changed in the

past 15 years, allows the Valley Substation to patrol all of its five beats and meet minimum staffing obligations. Two of the deputies patrol the Martinez area (Beats 20 and 22); the remaining three are assigned to Beats 11, 12, and 13. When a sixth deputy is available (from the reserve staff used to replace officers on extended sick leave and vacation), the Valley Substation staffs Beat 14, which includes the planning area. Recently, however, CCCSD has been able to staff Beat 14 for only three to four shifts per month because of a reduction in the reserve staff. (Snell and Mongsene pers. comms.)

The Dougherty Valley planning area is specifically located within Beat 13, which encompasses 78 square miles. Beat 13, like most other beats, is usually patrolled by one deputy. CCCSD receives few service calls to Beat 13 because of its rural land use but estimates that its response time to the planning area for Priority 1 calls would range from approximately 5-10 minutes. (Snell, Mongsene pers. comms.)

CCCSD obtains its funding from the County general fund. Since 1980, the department has not hired any new officers, and its staff has declined from 139 to 133 sworn officers. Although it has not been hiring, the department currently maintains 1.4 sworn officers per 1,000 population. However, this includes a large number of investigators. The patrol division accounts for 0.6 or 0.7 officers per 1,000 population, which CCCSD considers less than adequate to maintain effective law enforcement service. Several police districts, financed through property tax assessments, have been employed in areas such as Blackhawk and Alamo to provide more law enforcement officers than CCCSD can provide. These districts have dedicated sheriff's deputies who patrol only unincorporated lands within the taxation area. (Snell pers. comm.)

### **California Highway Patrol**

The CHP would be responsible for responding to traffic-related incidents and enforcing traffic laws in the planning area.

The CHP's Dublin office assigns one officer to patrol the area bounded by I-680, I-580, Mt. Diablo State Park, and the Byron area. However, this officer is mostly on the freeways and responds to this beat area when needed for specific calls. (Kerri pers. comm.)

When the Dublin office opened in January 1991, the CHP requested that the State fund 70 officers to staff it. The State responded by funding 55 officers and the Dublin office does not anticipate receiving additional officers for 5-10 years. (Kerri pers. comm.)

### **Fire Services**

The SRVFPD would be responsible for providing fire protection, emergency medical service, and hazardous materials response to the planning area. The district encompasses 135 square miles and has a population of approximately 120,000 people. District operations are funded through property tax revenues. (Probert pers. comm.)



SRVFPD maintains eight fire stations (Figure 5-4). These stations are generally equipped with 29 firefighting vehicles, four ambulances (basic life support) and two paramedic vans (advanced life support), and 10 reserve firefighting units (four engines, four wildland engines, and two ambulances). Stations 34 and 36 would provide initial response to the planning area. The equipment and staffing characteristics of these stations are presented in Table 5-1. These data were updated from the description of SRVFPD facilities and staffing presented in the previous DVSP EIR (EIP Associates 1991).

The overall arrangement of its equipment and staff recently enabled SRVFPD to reduce its Insurance Services Office (ISO) rating from four to three. ISO ratings, used to determine fire insurance rates, indicate firefighting ability and are based on a scale of one to nine, with one being the best. The district also has an average emergency response time of 4-5 minutes for medical and fire emergencies. (Probert pers. comm.)

SRVFPD provides other services to the community than fire suppression and emergency response. It also reviews development plans to ensure adequate fire safety features are included and inspects new development to ensure the adequacy of water and sprinkler systems, weed abatement, and other safety measures. SRVFPD also educates school children on fire safety and emergency management and provides training to students and residents on fire safety, neighborhood emergency preparedness, first aid, and rescue. (Probert pers. comm.)

### **School System and Childcare**

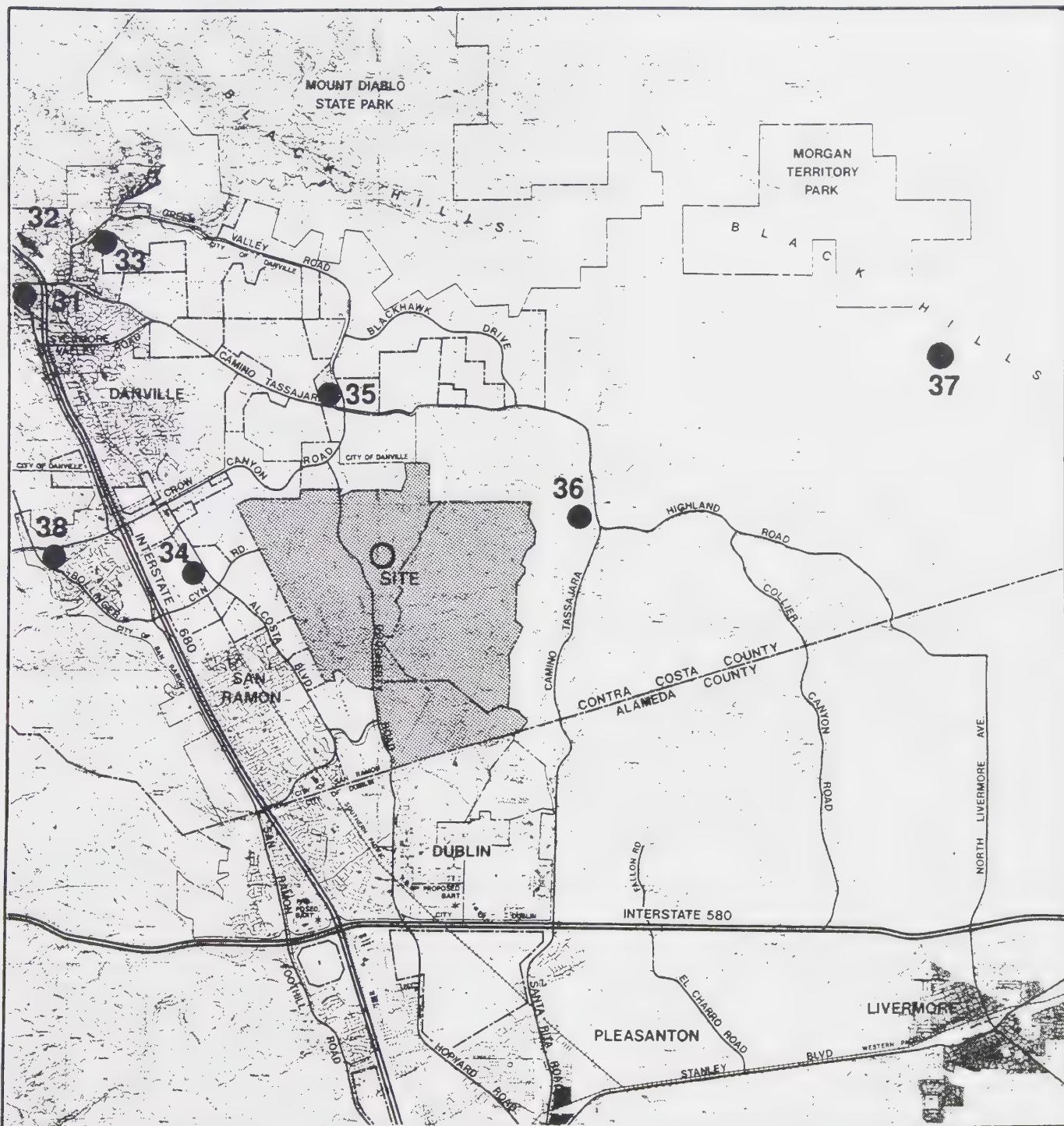
#### **San Ramon Valley Unified School District**

The planning area is within the boundaries of the San Ramon Valley Unified School District (SRVUSD), which provides primary and secondary school services to a 100 square-mile area in central and eastern Contra Costa County (Learned pers. comm.). The district's main student population originates from several communities along the I-680 corridor, such as Danville, Alamo, and San Ramon.

SRVUSD operates 15 elementary schools, four middle schools, and three high schools (Learned pers. comm.). The capacities and enrollments for each of these types of schools are presented in Table 5-2. The district anticipates that its enrollment will range from 21,954 to 24,855 students by 2001 (an increase of approximately 34%-52% over current enrollment levels). Further, the district anticipates that its schools will reach capacity by 1996, creating the need for additional school facilities. (Learned pers. comm.)

SRVUSD can pursue several options to finance new school facilities. California law (Cal. Government Code Sec. 53080 et seq.) allows school districts to charge developers per square foot of new housing space and per square foot of commercial space they construct. Because acquiring land and constructing school facilities is not usually entirely funded by these fees across districts distributed statewide, SRVUSD may employ other measures also allowed by law.





#### LEGEND

- Existing Fire Stations
- Proposed Fire Station



0 8000  
FEET

Figure 5-4. Existing San Ramon Valley Fire Protection District Fire Station Locations and Proposed Fire Station Site Identified in the Contra Costa County General Plan

Sources: Probert pers. comm., Contra Costa County Community Development Department 1991

Table 5-1. Equipment and Staffing Characteristics of  
SRVFPD Stations 34 and 36

Name	Equipment	Staff <sup>a</sup>
Station 34	1 first-out engine 1 reserve engine 1 ladder truck 1 wildland engine 1 EMT ambulance	6 full time
Station 36	1 first-out engine 1 reserve engine 1 wildland engine 1 first-out water tender 1 reserve water tender	3 full time, 9 volunteers

<sup>a</sup> Number of staff shown are on-duty personnel for one shift only.

Source: Probert pers. comm.

Table 5-2. Capacities and Enrollment for School  
Facilities in the SRVSD (1992 School Year)

Grade	Number of Students Enrolled	Capacity	Percentage of Capacity
K-5 (elementary)	7,981	8,490	94
6-8 (middle)	3,479	3,624	96
9-12 (high)	4,868	5,661	86

Source: Learned pers. comm.



## **Contra Costa Community College District**

The Contra Costa Community College District (CCCCD) serves all of Contra Costa County from three community colleges. These colleges are concentrated in northern Contra Costa County: Pleasant Hill, San Pablo, and Pittsburg. These facilities are effectively at capacity; CCCCCD estimates that these colleges will need an additional 20,000 square feet of lecture hall space and space for laboratories, administrative offices, and other facilities to accommodate enrollment increases within the next 5 years. (Howtrow pers. comm.)

CCCCD has analyzed Association of Bay Area Governments population projections and has identified the I-680 corridor as a focus for population growth. The area east of I-680 and south of State Route 24 generated a community college enrollment of 5,200 (or 6% of the population served) in fall 1990 (ROMA Design Group 1990). By 2000, this area's student population will approach 8,000. Therefore, CCCCCD has identified the San Ramon Valley area as the best location for a community college to serve this anticipated growth. CCCCCD has also identified Pinole and Brentwood as future growth centers and plans to locate college extension services in these areas. (Howtrow pers. comm.)

CCCCD receives funding from the State and some from local property taxes but anticipates increasing difficulty in obtaining adequate financing for community college facilities. (Howtrow pers. comm.)

## **Childcare**

Childcare facilities are operated in the San Ramon Valley by several private providers and are located on school sites, in private homes, and in special day care centers.

Specialized before- and after-school childcare services in the San Ramon Valley for grades K-6 are offered by Kids' Country. Kids' Country facilities operate year round at seven of SRVUSD's 14 elementary schools and have capacities ranging from 28 to 65 students. Four of these facilities are located in San Ramon. The SRVUSD plans these facilities and leases elementary school land at a nominal fee to Kids' Country for their childcare facilities. (ROMA Design Group 1990, Learned pers. comm.)

Childcare centers are also located in San Ramon, operated by providers such as Larson's Growing Room and YMCA (Learned pers. comm.). These providers operate six childcare centers with a collective capacity of 511 children ages one to 12. (ROMA Design Group 1990.)

Family day care homes that cater to children ages one to 12 account for the remaining childcare capacity in San Ramon. Approximately 69 of these facilities operate in San Ramon, with a total capacity of 937 children. Of these 69 homes, 55 are licensed to care for up to six children, and eight are licensed to care for up to 12 children. (ROMA Design Group 1990.)

**Childcare Facilities Standards.** The California Department of Social Services, which licenses childcare facilities, requires each facility to have a minimum of 35 square feet of indoor space per child and 75 square feet of outdoor space per child. Given these standards, childcare providers generally agree that to be profitable, a childcare facility must have a capacity of 50 children. Therefore, to care for 50 children, a childcare facility must have approximately 1,750 square feet of indoor space and 3,750 square feet of outdoor space. These requirements would probably be met by an appropriately sized home on a lot with a minimum area of 5,500-6,000 square feet. (ROMA Design Group 1990.)

**Contra Costa County Childcare Ordinance.** This ordinance requires that childcare be provided for nonresidential projects having 100 or more potential employees or for residential projects of more than 30 units. For each of these projects, the developer must provide childcare facilities necessary to meet the demands of the project or demonstrate that these needs would be met through existing childcare facilities. The ordinance also requires that new facilities constructed to meet childcare demands of residential projects be operating to serve the demands of the project for a minimum of 25 years. (Contra Costa County Code Chapter 82-22.)

## **Parks and Recreation**

### **Regional Parks, Open Space, and Trails**

EBRPD, which includes the Dougherty Valley planning area, operates regional parks, lake recreation areas, and trails in Contra Costa County and western Alameda County. Within these counties, EBRPD manages 47 parks and 11 regional trails, for a total area of approximately 65,000 acres. (East Bay Regional Parks District 1989.)

The EBRPD park nearest to the planning area is the 451-acre Tassajara Creek Regional Park, located just south of the Contra Costa/Alameda County border and west of Camino Tassajara Road. However, much of the land within the park is being reoccupied by Camp Parks, and the district anticipates retaining only 25 acres for parkland uses. EBRPD plans to construct a staging area on the remaining parcel to allow recreationists to park vehicles and enter the proposed regional trail from Sycamore Valley to Tassajara Creek on foot, horseback, or bicycle. (East Bay Regional Park District 1989, Lindenmeyer pers. comm.)

In its 1989 master plan, EBRPD identified opportunities to acquire new parkland in the Sycamore/Dougherty Valley area, which includes the planning area. EBRPD's regional trail from Sycamore Valley to Tassajara Creek would extend north to south through the planning area and could network with open space areas managed by EBRPD. (East Bay Regional Parks District 1989.)

**Contra Costa County General Plan.** The Contra Costa County General Plan identifies proposed open space areas and trail alignments within the Dougherty Valley planning area (Figure 5-5) (Contra Costa County Community Development Department 1991).



## **Local Parks**

Local parks in the unincorporated portions of Contra Costa County are usually managed by special park districts (County service areas), as required by the County. Contra Costa County requires that new development dedicate 2.5 acres of neighborhood and 1.5 acres of community parks per 1,000 new population (Contra Costa County Community Development Department 1991). The County's park standards are presented in Table 5-3.

**Contra Costa County Park Dedication Ordinance.** This ordinance requires that developers proposing residential projects must either dedicate 350 square feet of park area per dwelling unit in the project or pay \$2,000 in lieu of dedication (except in east Contra Costa County). The ordinance also allows partial credit toward the acreage of parkland required for a given development for certain private park and recreation areas. (Contra Costa County Code Chapter 920-4 et seq.)

## **Gas and Electric Service**

PG&E provides gas and electricity services to the San Ramon Valley. An existing gas main that runs from the Mission Division office through the planning area needs to be upgraded to alleviate low pressure problems in the Blackhawk area (EIP Associates 1991.) PG&E also has a transmission line easement that crosses the planning area (Figure 3-3). Electric service to the planning area would originate from the Tassajara and San Ramon substations (Mitchell pers. comm.). Refer to Chapters 4, "Land Use", and 13, "Electromagnetic Fields", for a discussion of electromagnetic fields in the planning area.

## **Communications Service**

### **Telephone**

Pacific Bell provides telephone service to the San Ramon Valley. Telephone service would be provided to the Dougherty Valley planning area from existing facilities from the San Ramon and possibly the Danville/Tassajara offices (Johnson pers. comm.).

### **Cable Television**

ViaCom, Inc. provides cable television service to the San Ramon area, including Camp Parks and other areas west of Dougherty Road. Ponderosa Cable serves the Danville and Blackhawk areas. ViaCom has applied to Contra Costa County to extend its franchise area east to the San Joaquin/Contra Costa County boundary (Dittrich pers. comm.). Ponderosa Cable has also applied to include the planning area in its franchise area (Burke pers. comm.). Service may also be provided by a company formed specifically to serve the project.



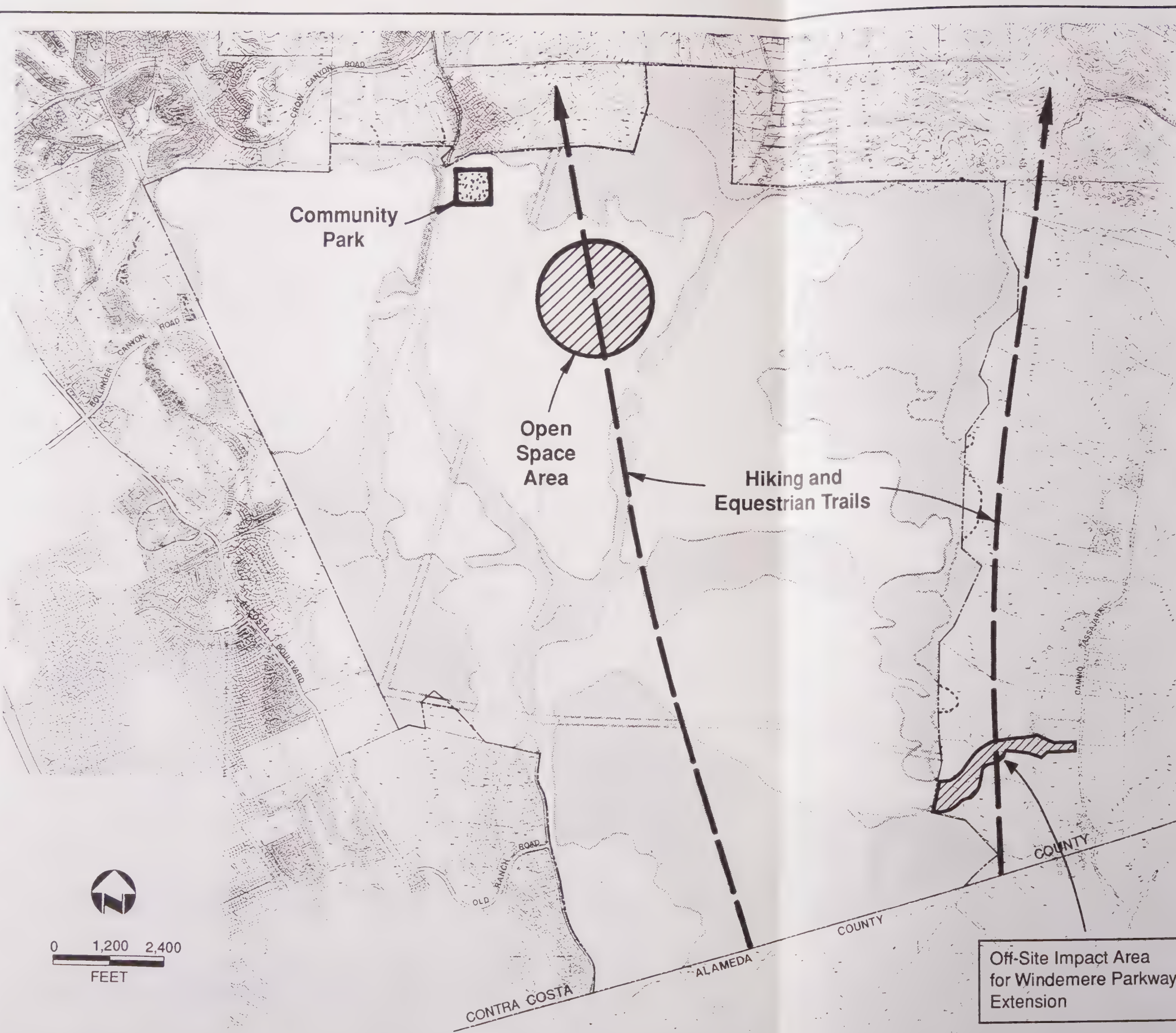




Figure 5-5.  
Contra Costa County General  
Plan Proposed Parks and Trails

-  Developed Impact Area  
(Mass Grading)
-  Areas in Which Grading Will Be  
Limited to Development of  
Special Facilities

Source: Contra Costa County Community  
Development Department 1991



Table 5-3. Contra Costa County Park Standards

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### Playlots

**Site area:** 2,000-5,000 square feet for either an independent site or the portion of a playground developed as a playlot.

**Location:** Independent sites located in the centers of apartment projects or planned unit developments that they are intended to serve.

**Facilities:** Basic facilities include playground equipment for preschool children (e.g., swings and slides) and a shaded bench area for parents; additional facilities include sandboxes, spray pools, and grassed and hard-surfaced play areas.

### Playgrounds

**Site area:** 3-7 acres (independent site); 3-5 acres (in conjunction with park or school).

**Location:** Central to neighborhood served; preferably accessible without having to cross traffic arterials or railroads.

**Facilities:** Basic facilities include playground equipment for elementary school children plus hard-surfaced and grassed play areas. Additional facilities include playlot, shelter, and sports and game areas (e.g., baseball diamonds, tennis courts, and wading and swimming pools).

**Service radius:** One-half mile; larger in areas of low population density or unusual topography.

**Association:** Playgrounds should be developed in conjunction with elementary schools and parks for maximum effectiveness; location within independently situated playfields and parks is also desirable.

### Playfields

**Site area:** 10 acres minimum, 15 acres desirable; 12 acres minimum, 17 acres desirable for sites with playground facilities.

**Location:** Central to four or five neighborhoods (roughly four or five elementary school service areas).

**Facilities:** Primary facilities include game courts, sports fields, and lawn games area. Secondary facilities include swimming pool, shelter house or recreation building, and parking lot.

**Association:** Playfields adjoining high school sites or community parks are particularly appropriate; playlots and playground should also be included.



Table 5-3. Continued

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### Neighborhood Parks

**Acreage/population:** 2.5 acres per 1,000 population.

**Site area:** 3-7 acres (without playground); 6-8 acres (with playfield).

**Location:** Identical to playgrounds; center for neighborhood.

**Facilities:** Park area only; landscaped open space (e.g., trees, grass, shrubbery), benches and tables, and walks.

**Service radius:** One-half mile.

**Association:** Neighborhood parks are best located adjacent to playgrounds, playfields, and elementary schools; they may also contain a neighborhood recreation center.

### Community Parks

**Acreage/population:** 1.5 acres per 1,000 population.

**Site area:** 15-20 acres (independent sites); minimum 25 acres, recommended 40-50 acres (with playground and playfield).

**Location:** Center of a group of neighborhoods; the site should have some natural features of interest such as water frontage or rough topography if possible.

**Service radius:** Two miles.

**Facilities:** Landscaped and natural open space; playgrounds; and playfields; parking; special facilities; such as golf, boating and swimming; and a community center.

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Source: Contra Costa County Community Development Department 1991.

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## Relevant Contra Costa County General Plan Policies

### Sewerage

- Goal 7-B. To permit development in unincorporated areas only when financing mechanisms are in place or committed which assure that adopted performance standards in the growth management program will be met.
- Goal 7-K. To provide service collection, treatment and disposal facilities adequate to meet the current and projected needs of existing and future residents.
- Goal 7-N. To assure that new development pays the costs related to the need for increased sewer system capacity.
- Policy 7-2. New development, not existing residents, should be required to pay all costs of upgrading existing public facilities or constructing new facilities which are exclusively needed to serve new development.
- Policy 7-31. Urban development shall be encouraged within the sewer Spheres of Influence adopted by the Local Agency Formation Commission. Expansion into new areas within the Urban Limit Line but beyond the Spheres of Influence should be restricted to those areas where urban development can meet growth management standards included in this General Plan.
- Policy 7-33. At the project approval stage, the County shall require new development to demonstrate wastewater treatment capacity can be provided. The County shall determine whether (1) capacity exists within the wastewater treatment system if a development project is built within a set period of time, or (2) capacity will be provided by a funded program or other mechanism. This finding will be based on information furnished or made available to the County from consultations with the appropriate water agency, the applicant, or other sources.
- Policy 7-37. The need for sewer system improvements shall be reduced by requiring new development to incorporate water conservation measures which reduce flows into the sanitary sewer system.
- Implementation measure 7-t. Conditionally approve all tentative subdivision maps and other preliminary development plans on verification of adequate wastewater treatment capacity for the project. Such condition shall be satisfied by verification based upon substantial information in the record that capacity within the system to serve the specific development project exists or comparable demonstration of adequate wastewater treatment capacity. Where no tentative map or preliminary plan is required

prior to development, approve no map or development permit without this standard being satisfied.

- Implementation measure 7-x. Include wastewater reduction and other measures recommended by sewer service agencies in the conditions of approval for subdivisions and other new development.
- Implementation measure 7-y. Encourage sewer service agencies and the Local Agency Formation Commission (LAFCO) to annex lands planned for urban development by this General Plan into their service areas.

## **Water Supply**

- Goal 7-B. To permit development in unincorporated areas only when financing mechanisms are in place or committed which assure that adopted performance standards in the growth management program will be met.
- Goal 7-F. To assure potable water availability in quantities sufficient to serve existing and future residents.
- Goal 7-H. To encourage the conservation of water resources available to the County and to the State.
- Goal 7-J. To ensure that new development pays the costs related to the need for increased water system capacity.
- Policy 7-1. New development shall be required to pay its fair share of the cost of all existing public facilities it utilizes, based upon the demand for these facilities which can be attributed to new development.
- Policy 7-2. New development, not existing residents, should be required to pay all costs of upgrading existing public facilities or constructing new facilities which are exclusively needed to serve new development.
- Policy 7-19. Urban development shall be encouraged within existing water Spheres of Influence adopted by the Local Agency Formation Commission; expansion into new areas within the Urban Limit Line beyond the Spheres of Influence should be restricted to those areas where urban development can meet all growth management standards included in this General Plan.
- Policy 7-21. At the project approval stage, the County shall require new development to demonstrate that adequate water quantity and quality can be provided. The County shall determine whether (1) capacity exists within the water system if a development project is built within a set



period of time, or (2) capacity will be provided by a funded program or other mechanism. This finding will be based on information furnished or made available to the County from consultations with the appropriate water agency, the applicant, or other sources.

- Policy 7-26. The need for water system improvements shall be reduced by encouraging new development to incorporate water conservation measures to decrease peak water use.
- Policy 7-27. The reclamation of water shall be encouraged as a supplement to existing water supplies.
- Implementation measure 7-i. Conditionally approve all tentative subdivision maps and other preliminary development plans on verification of adequate water supply for the project. Such condition shall be satisfied by verification, based upon substantial information in the record, that capacity within the system to serve the specific development project exists or comparable demonstration of adequate wastewater treatment capacity. Where no tentative map or preliminary plan is required prior to development, approve no map or development permit without this standard being satisfied.
- Implementation measure 7-m. Encourage water service agencies and the LAFCO to annex lands planned for urban development by this General Plan into their service areas. Conversely, encourage water agencies and LAFCO to detach the private lands from the service boundaries which are not planned for urban development and which are not currently served.
- Implementation measure 7-n. Encourage LAFCO to establish water service Spheres of Influence that are coincident with the boundary of planned urban development in this General Plan, including those rural properties that currently receive service.
- Implementation measure 7-o. Encourage the implementation of existing Urban Water Management Plans.
- Implementation measure 7-r. Where feasible, include water conservation measures recommended by water service agencies in the conditions of approval for subdivisions and other new development.

## **Reclaimed Water**

- Policy 7-2. New development, not existing residents, should be required to pay all costs of upgrading existing public facilities or constructing new facilities which are exclusively needed to serve new development.

- Policy 7-24. Opportunities shall be identified and developed in cooperation with water service agencies for use on non-potable water, including ground water, reclaimed water, and untreated surface water, for other than domestic use.
- Policy 7-27. The reclamation of water shall be encouraged as a supplement to existing water supplies.

## Drainage

- Goal 7-B. To permit development in unincorporated areas only when financing mechanisms are in place or committed which assure that adopted performance standards in the growth management program will be met.
- Goal 7-Q. To employ alternative drainage systems improvements which rely on increased retention capacity to lessen or eliminate the need for structural modifications to watercourses, whenever economically possible.
- Goal 7-T. To ensure that new development pays its fair share of the costs related to increased runoff created by the development.
- Policy 7-44. New development should be required to finance its legal share of the full costs of drainage improvements necessary to accommodate projected peak flows due to the project. Reimbursement from subsequent developments which benefit from the added capacity may be provided.
- Policy 7-45. On-site water control shall be required of major new developments so that no significant increase in peak flows occurs compared to the site's pre-development condition, unless the Planning Agency determines that off-site measures can be employed which are equally effective in preventing adverse downstream impacts expected from the development or the project is implementing an adopted drainage plan.
- Policy 7-55. As appropriate and to the extent allowed by law, assess all new development projects at least \$0.35 per square foot of impervious surface created. This drainage fee is to be collected through existing County Flood Control drainage area fee ordinances, newly adopted drainage area fee ordinances, existing and new assessment districts, or other financial entities. The fee may be applied to the cost of any developer-sponsored regional flood control improvements on- or off-site which mitigate the project's flooding impacts. Regional facilities are defined as systems sized to handle at least 15 cubic feet per second and suitable for public agency maintenance, i.e., 24-inch diameter and larger storm drains.

- Policy 7-56. All residential and non-residential uses proposed in areas of special flood hazards, as shown on FEMA maps, shall conform to the requirements of County Floodplain management applied to all ordinances, approved entitlements (land use permits, tentative, final, and parcel maps, development plan permits, and variances) and ministerial permits (buildings and grading permits).

## **Solid Waste**

- Goal 7-AE. To provide for the safe, efficient, and cost-effective removal of waste from residences, businesses, and industry.
- Goal 7-AF. To provide adequate disposal capacity at landfills for the County's solid waste.
- Goal 7-AG. To reduce the amount of waste disposed of in landfills by:
  - 1) reducing the amount of solid waste generated (waste reduction);
  - 2) reusing as much of the solid waste as possible (recycling);
  - 3) utilizing the energy and nutrient value of the solid waste (waste to energy and composting); and
  - 4) to properly dispose of the remaining solid waste (landfill disposal).
- Goal 7-AH. To divert as much waste as feasible from landfills through recovery and recycling.
- Policy 7-88. Solid waste disposal capacity shall be considered in County and city land use planning and permitting activities, along with other utility requirements, such as water and sewer service.
- Policy 7-91. Solid waste resource recovery (including recycling, composting, and waste to energy) shall be encouraged so as to extend the life of sanitary landfills, reduce the environmental impact of solid waste disposal, and to make use of a valuable resource, provided that specific resource recovery programs are economically and environmentally desirable.

## **Police Services**

- Goal 7-B. To permit development in unincorporated areas only when financing mechanisms are in place or committed which assure that adopted performance standards in the growth management program will be met.



- Goal 7-V. To provide a high standard of police protection services for all citizens and properties throughout Contra Costa County.
- Goal 7-W. To incorporate police protection standards and requirements into the land use planning process.
- Goal 7-X. To encourage public participation in crime prevention activities.
- Policy 7-57. A sheriff facility standard of 155 square feet of station area per 1,000 population shall be maintained within the unincorporated area of the County. (Also see Growth Management Element.)
- Policy 7-59. A maximum response time goal for priority 1 or 2 calls of five minutes for 90 percent of all emergency responses in central business district, urban and suburban areas, shall be strived for by the sheriff when making staffing and beat configuration decisions.
- Policy 7-60. Levels of service above the county-wide standard requested by unincorporated communities shall be provided through the creation of a County Service Area or other special governmental unit.
- Implementation measure 7-ao. Encourage the use of citizen action programs sponsored by the Sheriff such as Neighborhood Watch and Operation ID.
- Implementation measure 7-aq. In developing areas the Sheriff protection service standard shall be achieved by creation of a County Service Area and special tax and/or creation of a Mello-Roos Community Facilities District that generates special tax revenue to support additional increments of Sheriff patrol necessary to meet the adopted service standard. Developers, prior to receiving development approvals, should agree (via a Development Agreement or a landowner election) to participate in such special funding districts.

## **Fire Services**

- Goal 7-B. To permit development in unincorporated areas only when financing mechanisms are in place or committed which assure that adopted performance standards in the growth management program will be met.
- Goal 7-Y. To ensure a high standard of fire protection, emergency, and medical response services for all citizens and properties throughout Contra Costa County.

- Goal 7-Z. To reduce the severity of structural fires and minimize overall fire loss.
- Policy 7-1. New development shall be required to pay its fair share of the cost of all existing public facilities it utilizes, based upon the demand for these facilities which can be attributed to new development.
- Policy 7-2. New development, not existing residents, should be required to pay all costs of upgrading existing public facilities or constructing new facilities which are exclusively needed to serve new development.
- Policy 7-11. A comprehensive financing plan which assures that needed public facilities are adequately financed, shall be included in all new specific plans and area general plans adopted by the County.
- Policy 7-62. The County shall strive to reach a maximum running time of 3 minutes and/or 1.5 miles from the first-due station, and a minimum of 3 firefighters to be maintained in all central business district (CBD), urban and suburban areas. (These areas are defined in Section 4).
- Policy 7-63. The County shall strive to achieve a total response time (dispatch plus running and set-up time) of five minutes in CBD, urban and suburban areas for 90 percent of all emergency responses.
- Policy 7-64. New development shall pay its fair share of costs for new fire protection facilities and services.
- Policy 7-66. Sprinkler systems may be required in new residential structures, where necessary to protect health, safety and welfare.
- Policy 7-68. Factors such as response times and distance, call volume and type, population, fire flow requirements, land use, development density and valuation, and access shall be considered when evaluating proposed station locations.
- Policy 7-70. The effectiveness of existing and proposed fire protection facilities shall be maximized by incorporating analysis of optimum fire and emergency service access into circulation system design.
- Policy 7-73. Fire fighting equipment access shall be provided to open space areas in accordance with the Fire Protection Code and to all future development in accordance with Fire Access Standards.
- Policy 7-74. All new traffic signals shall be equipped with preemptive devices for emergency response services. Existing traffic signals significantly impacted by new development shall be retrofitted with preemptive devices.

- Policy 7-76. The architectural design and landscaping of new fire stations shall be complimentary with surrounding land uses.
- Policy 7-77. Fire stations shall be located and designed so as to minimize operating costs and maximize service standards in the area they serve.
- Policy 7-78. Interim fire protection provisions using temporary and relocatable stations shall be considered to meet immediate, existing service needs until such time as permanent stations can be established.
- Policy 7-80. Wildland fire prevention activities and programs such as controlled burning, fuel removal, establishment of fire roads, fuel breaks and water supply, shall be encouraged to reduce wildland fire hazards.
- Implementation measure 7-au. Fire protection agencies shall be afforded the opportunity to review projects and submit conditions of approval for consideration to determine whether:
  - there is an adequate water supply for fire fighting;
  - road widths, road grades and turnaround radii are adequate for emergency equipment; and
  - structures are built to the standards of the Uniform Building Code, the Uniform Fire Code, other State regulations, and local ordinances regarding the use of fire-retardant materials and detection, warning and extinguishment devices.
- Implementation measure 7-av. The County Building Inspection Department and Community Development Department shall submit building and development plans for all new construction, including remodeling, to the local fire protection agency to assure that fire safety and control features are included that meet the adopted codes and ordinances of that agency.
- Implementation measure 7-ba. Continue to levy fire facility fees for new development in unincorporated areas, in accordance with five-year plans.
- Implementation measure 7-bb. Consider establishment of benefit assessment districts for fire protection purposes. In areas where operating shortfalls will result from increased service requirements related to new growth or the new service standards, the County should establish and/or increase fees generated from the benefit assessment districts.



## **School System and Childcare**

- Goal 7-B. To permit development in unincorporated areas only when financing mechanisms are in place or committed which assure that adopted performance standards in the growth management program will be met.
- Goal 7-AO. To assure the provision of adequate primary, secondary, and college facilities in the County.
- Goal 7-AR. To assure that school facilities are adequate or committed to be adequate, prior to approvals of major applications for residential growth.
- Goal 7-AS. To assist and encourage the development of adequate, affordable and quality childcare in Contra Costa County.
- Policy 7-2. New development, not existing residents, should be required to pay all costs of upgrading existing public facilities or constructing new facilities which are exclusively needed to serve new development.
- Policy 7-144. The development of quality schools shall be supported by coordinating development review with local school districts including such activities as designating school sites, obtaining dedications of school sites, and supporting local fees, special taxes, and bond issues intended for school construction.
- Policy 7-147. The development of school facilities shall be provided in conjunction with and adjacent to local parks and trailways.
- Policy 7-149. The County shall support efforts to build a new junior college in the San Ramon Valley.
- Policy 7-150. The County shall support school facility fees for growth-impacted school districts.
- Policy 7-151. The development of high quality childcare and preschool facilities shall be encouraged in appropriate locations, especially in conjunction with schools, church facilities and centers of concentrated employment such as business parks.
- Policy 7-152. Childcare and preschool facilities shall be consistent with residential and commercial land use designations where safe vehicular access and effective buffering of neighboring residences can be achieved.
- Policy 7-153. Proposed development projects shall be required to provide for childcare and preschool facilities in accordance with the General Plan

and applicable ordinances, when significant demand for these facilities is created by the projects.

- Policy 7-155. In order to increase parental choice, the location of childcare facilities shall be encouraged in residential neighborhoods, employment centers, at school sites, hospitals, religious facilities, parks and along transit routes.

## **Parks and Recreation**

- Goal 7-B. To permit development in unincorporated areas only when financing mechanisms are in place or committed which assure that adopted performance standards in the growth management program will be met.
- Goal 9-H. To develop a sufficient amount of conveniently located, properly designed park and recreational facilities to serve the needs of all residents.
- Goal 9-I. To develop a system of interconnected hiking, riding and bicycling trails and paths suitable for both active recreational use and for the purpose of transportation/circulation.
- Goal 9-K. To achieve a level of park facilities of four acres per 1,000 population.
- Policy 7-2. New development, not existing residents, should be required to pay all costs of upgrading existing public facilities or constructing new facilities which are exclusively needed to serve new development.
- Policy 9-13. Providing public facilities for outdoor recreation should remain an important land use objective in the County, as a method of promoting high scenic quality, for air quality maintenance, and to enhance outdoor recreation opportunities of all residents.
- Policy 9-32. Major park lands shall be reserved to ensure that the present and future needs of the County's residents will be met and to preserve areas of natural beauty or historical interest for future generations. Apply the parks and recreation performance standards in the Growth Management Element.
- Policy 9-33. A well-balanced distribution of local parks, based on character and intensity of present and planned residential development and future recreation needs, shall be preserved.

- Policy 9-34. Park design shall be appropriate to the recreational needs and access capabilities of all residents in each locality.
- Policy 9-39. Recreational development shall be allowed only in a manner which complements the natural features of the area, including the topography, waterways, vegetation and soil characteristics.
- Policy 9-40. Recreational activity shall be distributed and managed according to an area's carrying capacity with special emphasis on controlling adverse environmental impacts, such as conflict between uses and trespass. At the same time, the regional importance of each area's recreation resources shall be recognized.
- Implementation measure 9-r. Require that new development meet the park standards and criteria included in the growth management program and set forth in Table 7-3. Ensure that credit for the park dedication ordinance requirements be given for private recreation facilities only after a finding has been adopted that the facilities will be open to and serve the public.
- Implementation measure 9-v. Develop a comprehensive and interconnected series of hiking, biking and riding trails in conjunction with cities, special districts, public utilities and county service areas.

## **IMPACTS AND MITIGATION MEASURES ASSOCIATED WITH THE PROJECT**

### **Methodology and Significance Criteria**

#### **Methodology**

Public services and utilities information was compiled from existing reports and personal communications with personnel from affected agencies. Impacts were assessed by applying the significance criteria in the following section.

#### **Significance Criteria**

Impacts of the proposed project on public services and utilities were considered significant if implementation of the project would:

- cause a substantial increase in demand for any public service or facility above those the agency plans to accommodate,



- cause a substantial decrease in the quality or level of service for any public service or utility such that Contra Costa County General Plan public services performance standards may not be met, or
- require extension of a public service or utility to an area not planned for service.

### **Key Assumptions**

The following assumptions were used in determining impacts on public services and utilities:

- Spheres of Influence indicate the probable ultimate service area boundaries of public service providers.
- TWA included proposed development of the planning area in its growth projections for the Dougherty and Tassajara Valleys.
- Recycled water will be used to irrigate public landscaping and low-flow fixtures in residences.
- No land within the Camp Parks area will be available in the near future as a community college site or for managed open space.
- Open space and parkland locations depicted on Figure 9-3 in the Contra Costa County General Plan are approximate.
- The parkland dedication standards for neighborhood and community parkland presented in Table 5-3 were in error and should be reversed so that the neighborhood parkland standard is 1.5 acres per 1,000 population and the community parkland standard is 2.5 acres per 1,000 population (Epperly pers. comm.).
- The DVSP is proposed in an area of the County not currently served by most public service providers.
- All onsite water, wastewater, and recycled water improvements identified by Brown and Caldwell (1992) would be provided by the project proponents as needed to serve development.

## Project-Related Impacts

### Impact: Need for Collection and Treatment of 2.5-3.1 Millions Gallons per Day of Wastewater

Implementation of the project would generate 2.5-3.1 mgd of wastewater on an average day, depending on whether Central San or DSRSD wastewater generation factors are used. Table 5-4 presents wastewater demand projections calculated using Central San wastewater generation factors, and Table 5-5 presents wastewater demand projections calculated using DSRSD wastewater generation factors. A system to collect wastewater generated by the DVSP was planned by Brown and Caldwell (1992) using the more conservative Central San wastewater generation factors (Appendix E) and is depicted in Figure 3-12. "Conservative" generation factors means the factors resulting in the largest predicted flows. These factors are used to design the wastewater collection system to ensure that it would have adequate capacity.

Two scenarios were considered by Brown and Caldwell when it developed a wastewater plan for the planning area (Appendix E). The first alternative would involve collection, treatment, and disposal by Central San. The second alternative, Alternative 3 North, would consist of wastewater collection by DSRSD, export to Central San through TWA facilities, and treatment and discharge by Central San.

The Dougherty Valley Specific Plan (PBR 1992) identifies the first alternative, service by Central San, as the preferred wastewater service scenario. Therefore, impacts of servicing the planning area on Central San are discussed below. Impacts on DSRSD, the secondary wastewater service provider, are discussed in mitigation measure 5-2.

Central San would need to make improvements to its facilities to collect and treat wastewater generated in the planning area because the district has planned to expand its facilities to serve only its current service area. These improvements could include the following:

- constructing a force main,
- constructing a gravity sewer,
- expanding the Larwin pump station or constructing the Fallen Leaf pump station,
- expanding the A-line and San Ramon interceptors,
- expanding the Central San wastewater treatment plant and sludge handling facilities, and
- expanding Suisun Bay outfall pumping capacity (Brown and Caldwell 1992).

These improvements could have offsite impacts, which are discussed below.

Table 5-4. Wastewater Generation in the DVSP Area Using  
Central San Wastewater Generation Factors

Land Use <sup>a</sup> /Infiltration	Unit Flow Factor	Units
Low density residential	225	gpd <sup>b</sup>
High density residential	150	gpd
Commercial	1,000	gpac <sup>c</sup>
Multi-use areas	1,000	gpac
Schools	430	gpac
Parks	500	
Golf courses	350	
Groundwater infiltration	200	
Wet weather infiltration	2,400	gpac
Total (average dry-weather flow)	2.5	mgd <sup>d</sup>
Total (peak wet-weather flow)	14.7 <sup>e</sup>	mgd

<sup>a</sup> DVSP acreages are not tabulated.

<sup>b</sup> Gallons per dwelling unit per day.

<sup>c</sup> Gallons per acres per day.

<sup>d</sup> Million gallons per day.

<sup>e</sup> Calculated by multiplying the average dry-weather flow by a wet-weather peaking factor of 3.0.

Source: Brown and Caldwell 1992.



Table 5-5. Wastewater Generation in the DVSP Area Using  
DSRSD Wastewater Generation Factors

Land Use <sup>a</sup> /Infiltration	Unit Flow Factor	Units
Low density residential	80	gpcd <sup>b</sup>
High density residential	N/A	
Commercial	2,500	gpad <sup>c</sup>
Multi-use areas	2,500	gpad
Schools	2,000	gpad
Parks	N/A	
Golf courses	N/A	
Groundwater infiltration	N/A	
Wet weather infiltration	600	gpad
Total (average dry-weather flow)	3.1	mgd <sup>d</sup>
Total (peak wet-weather flow)	7.4 <sup>c</sup>	mgd

<sup>a</sup> DVSP acreages are not tabulated.

<sup>b</sup> Gallons per capita per day.

<sup>c</sup> Gallons per acre per day.

<sup>d</sup> Million gallons per day.

<sup>e</sup> Calculated by multiplying the average dry-weather flow by a wet-weather peaking factor of 1.8.

Source: Brown and Caldwell 1992.

The following DVSP goal supports the project proponents' commitment to providing adequate wastewater service to the DVSP area:

- **Utilities Goal:** Provide the necessary additional utilities and public services to meet the needs of the future population of Dougherty Valley, while meeting applicable county standards.

This impact is considered significant because the substantial increase in demand for wastewater service that would be created by the project could result in Contra Costa County public services performance standards not being met (refer to Contra Costa County General Plan goals 7-B, 7-K, 7-N, and policies 4-1 and 7-2).

### **Mitigation Measures**

- 5.1: The project proponents and the county should apply to the Contra Costa County LAFCO for and obtain annexation of the planning area to Central San. The annexation application should be submitted with a service program stating how Central San would provide wastewater service to the planning area while continuing to meet the demands of its current service area. This should include a discussion of needed facilities expansions and should specify the DVSP area's pro-rata share of these facilities. The Contra Costa County Community Development Department should condition the approval of development within the preliminary development plans on successful annexation to Central San and would be responsible for monitoring the success of this mitigation measure.
- 5.2: If obtaining wastewater service from Central San would be infeasible or if other reasons justify serving the project through another agency, the developers should apply to the Contra Costa County LAFCO and obtain annexation of the planning area to DSRSD for wastewater service.

If DSRSD were to collect wastewater and TWA were to convey this wastewater to Central San for treatment, the Central San improvements listed above, except the expansion of the Larwin pump station/construction of Fallen Leaf pump station, could be required plus the following additional improvements:

- a relief gravity sewer,
- a raw sewage pumping station, and
- flow equalization facilities. (Brown and Caldwell 1992).

The construction and operation of these improvements could have offsite impacts, which are discussed below.

- 5.3: The county should require the developers to provide the planning area's pro-rata share of all offsite wastewater service improvements necessary to serve the planning area. The Contra Costa Community Development Department and Central San (or DSRSD if obtaining wastewater service from Central San is infeasible) would be responsible for monitoring the success of this mitigation measure.

Implementation of mitigation measures 5.1-5.3 would reduce this impact to a less-than-significant level because obtaining annexation to Central San or DSRSD would ensure that wastewater treatment capacity would be available to meet County public service performance standards.

#### **Impact: Construction and Operation of Offsite Wastewater Facilities**

Construction of the offsite wastewater transportation and treatment improvements discussed above would be required to serve the planning area. These facilities could have offsite impacts including direct physical impacts of construction and indirect impacts related to growth allowed by these facilities outside the planning area.

If DSRSD served the planning area, TWA facilities would be needed. The impacts of these facilities are addressed in the Draft Subsequent Environmental Impact Report, Long-Range Wastewater Management Plan for the Livermore-Amador Valley (EIP Associates 1992). This EIR concludes that implementation of Alternative North 3 could result in significant environmental impacts, including exceedance of effluent limits, spills of untreated wastewater, soil erosion, visual impacts due to incompatible architectural design and construction activities, noise impacts due to construction, impacts on traffic flow, and air impacts associated with construction. With implementation of the suggested mitigation measures, however, all of the direct project impacts would be reduced to a less-than-significant level (EIP Associates 1992).

Because other facilities needed to provide wastewater service to the planning area have not been designed, the physical impacts of their construction and indirect growth-related impacts are too speculative to be assessed at this time. Environmental review of these facilities would be the responsibility of the wastewater service agency serving the planning area.

#### **Impact: Need for Distribution and Treatment of Approximately 4.7 to 5.4 Millions Gallons per Day of Potable Water**

Implementation of the DVSP would increase demand for potable water by approximately 4.7-5.4 mgd on an average day with peak demands ranging from 15.6-29.2 mgd depending on whether DSRSD or EBMUD water demand factors are used. (These water demands assume that reclaimed water would be used for irrigation of public landscaping.) Table 5-6 presents water demand projections calculated using EBMUD water use factors and Table 5-7 presents water demand projections calculated using DSRSD water use factors. To satisfy these demands, EBMUD would need to potentially obtain additional water supplies because it is anticipating that projected demands within its current service area may exceed the amount of available water supplies in the future and because it is not planning to serve the planning area.

Two scenarios were considered by Brown and Caldwell when it developed a water service plan for the planning area (Appendix E): service by EBMUD or DSRSD. EBMUD



Table 5-6. Demands for Water Service in the DVSP Area  
Using EBMUD Water Use Factors

Land Use <sup>a</sup>	Area (ac)	Dwelling Units	Water Use Factor	Demand <sup>b</sup> (mgd)
SM	1,294	5,089	583 gpd/du <sup>c</sup>	2.967
ML	595	3,467	435 gpd/du	1.508
MH	290	2,044	215 gpd/du	0.439
MU	55	400	1,100 gad <sup>d</sup>	0.125
P/SP	289	--	500 gad	0.145
PR	295	--	500 gad	0.147
GC	194	--	350 gad	0.069
C	<u>14</u>	<u>--</u>	1,100 gad	<u>0.015</u>
Total	3,024	11,000		5.415

<sup>a</sup> Land use designations are described in Chapter 3 "Project Description."

<sup>b</sup> Average day.

<sup>c</sup> Gallons per day per dwelling unit.

<sup>d</sup> Gallons per acre per day.

Source: Brown and Caldwell 1992.

Table 5-7. Demands for Water Service in the DVSP Area  
Using DSRSD Water Use Factors

Land Use <sup>a</sup>	Area (ac)	Dwelling Units	Water Use Factor	Demand <sup>b</sup> (mgd)
SM	1,294	5,089	493 gpd/du <sup>c</sup>	2.509
ML	595	3,467	370 gpd/du	1.283
MH	290	2,044	215 gpd/du <sup>d</sup>	0.439
MU	55	400	1,100 gad	0.125
P/SP	289	--	500 gad	0.145
PR	295	--	500 gad	0.147
GC	194	--	350 gad	0.069
C	<u>14</u>	<u>--</u>	1,100 gad	<u>0.015</u>
Total	3,024	11,000		4.731

<sup>a</sup> Land use designations are described in Chapter 3 "Project Description."

<sup>b</sup> Average day.

<sup>c</sup> Gallons per day per dwelling unit.

<sup>d</sup> Gallons per acre per day.

Source: Brown and Caldwell 1992.

is identified in the DVSP as the proposed water service provider (PBR 1992). Brown and Caldwell designed the planning area water distribution system according to the more conservative EBMUD water use factors (refer to Appendix E) (Figure 3-12). Additional offsite facilities would be needed by EBMUD to serve the planning area because EBMUD has not planned to serve the planning area.

EBMUD may need to expand the following facilities to supply water to the planning area:

- Walnut Creek filter plant,
- Danville pumping plant,
- planned Danville pumping plant water mains,
- Castenada pump station,
- Scenic East pumping station, and
- storage for the Scenic and San Ramon pressure zones. (Brown and Caldwell 1992.)

These improvements could have offsite impacts.

This impact is considered significant because the project would cause a substantial demand for water to serve the planning area, the planning area is not within the service area or sphere of influence of water service provider, and the project would require the extension of water services to an area not currently planned for such services.

### **Mitigation Measures**

- 5.4: The project proponents and the county should apply to the Contra Costa County LAFCO for and obtain annexation of the planning area to EBMUD. The annexation application should be submitted with a plan for service stating how water would be provided to the DVSP area while continuing to meet the demands of its current service area.
- 5.5: If obtaining water service from EBMUD would be infeasible, the developers should apply to the Contra Costa County LAFCO for and obtain annexation of the planning area to DSRSD for water service.

If DSRSD were to supply water to the plan area, the district would potentially need to construct the following facilities:

- a new aqueduct turnout from Zone 7 facilities along I-580;
- upsize the existing aqueduct turnout from Zone 7 facilities west of Dougherty Road in north Dublin;



- 14- and 16-inch diameter water mains, including 7,200 feet of 16-inch diameter (minimum) water main, along Dougherty Road from the existing Dublin Zone 7 turnout;
- two to four booster pump stations; and
- at least two storage reservoirs. (Brown and Caldwell 1992.)

These facilities would be constructed partially to serve East Dublin. If East Dublin development began before or during Dougherty Valley development, pumping stations and water mains would need to be sized to accommodate both development areas. The existing Zone 7 turnout in Dublin near Dougherty Road would need to be connected to the southwest portion of the Dougherty Valley distribution system using approximately 7,200 feet of pipe. This source would rely on two booster pumping stations, each of which would be dedicated to one of the pressure zones in the planning area. Another source would be generated from the proposed distribution system expansion for East Dublin. This source would rely on four reservoirs and two pumping stations as shown in Figure 2 of the report. If development occurred in the planning area before the planning of development in East Dublin, the 7,200 feet of water main from the existing Zone 7 turnout would need to be sized to accommodate projected planning area water demands only. (Brown and Caldwell 1992.)

- 5.6 The County should require all landscaping to be irrigated with drip systems or water-efficient sprinkler systems, which should be:
  - calibrated to deliver only the amount of water necessary to sustain the irrigated species,
  - timed to operate in the early morning, and
  - designed and adjusted to avoid sprayover onto adjacent barren surfaces (such as sprinkler sprayover from median strip irrigation onto adjacent asphalt).

The Contra Costa County Community Development Department would be responsible for monitoring the success of this mitigation measure.

- 5.7: The County should require the maximum use of recycled water for irrigation of open space areas, median strips, the golf course, and other public places. The County should also require the maximum use of recycled water for irrigation of private-lot landscaping, where feasible. Currently, the California Department of Health Services (DHS) does not allow private landowners to control recycled water use on their property. Because residents are concerned about involuntary exposure to reclaimed water, this lack of private control has reduced the acceptability of using recycled water to irrigate private lot landscaping. However, DHS is revising its interpretation of Title 22 water quality standards to allow private control of recycled water, which will increase the acceptability and

feasibility of irrigating private lot landscaping with recycled water (McCarthy pers. comm.) The Contra Costa Community Development Department would be responsible for monitoring the success of this mitigation measure.

- 5.8: The county should require the developers to provide the planning area's pro-rata share of all offsite water service improvements necessary to serve the planning area. The Contra Costa Community Development Department and EBMUD (or DSRSD if obtaining water service from EBMUD is infeasible) would be responsible for monitoring the success of this mitigation measure.

Implementation of mitigation measures 5.4-5.8 would reduce this impact to a less-than-significant level because water services would be provided to meet County public services performance standards.

#### **Impact: Construction and Operation of Offsite Water Facilities**

Construction of the offsite water treatment and distribution improvements discussed above would be required to serve the planning area. These facilities could have offsite impacts including direct physical impacts of construction and indirect impacts related to growth allowed by these facilities outside the planning area.

Because these offsite facilities needed to provide water service to the planning area are generally only in the conceptual design stage, the detailed secondary impacts of their construction and indirect growth-related impacts are too speculative to be assessed at this time. Detailed environmental impact assessment of these facilities would be the responsibility of the water service agency proposing to construct the facilities.

#### **Impact: Need for Approximately 1,100 Gallons per Minute of Recycled Water**

Implementation of the project would create the need for 1,104 gpm of recycled water from DSRSD (Table 5-8) to compensate for potable water that would otherwise be needed for irrigation. Existing treatment facilities at the DSRSD treatment plant may need to be reconditioned and possibly new facilities added and a recycled water pipeline and pumping station installed to convey recycled water to the planning area (McCarthy pers. comm.).

The County studied five alternatives for providing recycled water service to the planning area and decided to pursue a less intensive option because of the cost associated with serving all areas in the planning area. The alternative selected would involve providing recycled water service in one pressure zone to all recycled water demands above 400 feet and below 620 feet elevation excluding the proposed community college.

According to the 1990 Brown and Caldwell report, to supply the planning area and other areas with reclaimed water from the DSRSD wastewater treatment plant, a 36-inch pipe would be required to be installed along I-680, Crow Canyon Road, and Dougherty Road. Based on Brown and Caldwell's most recent study (Brown and Caldwell 1992),

Table 5-8. Projected Recycled Water Demand

Land Use	Irrigatable Area (ac)	Evaporation Rate <sup>a</sup> (gpm/ac) <sup>b</sup>	Demand (gpm) <sup>c</sup>
PR	487.5	2.039	993.77
P/SP	18.2	2.039	37.00
C	1.4	2.039	2.81
Roads	<u>34.3</u>	2.039	<u>69.96</u>
Total	541.4		1,103.54

## Notes:

<sup>a</sup> Estimated amount of water that evaporates in a minute over a 1-acre area. Used to calculate landscaping water demands.

<sup>b</sup> Gallons per minute per acre.

<sup>c</sup> Gallons per minute.

Source: Brown and Caldwell 1992.



reclaimed water could be transported to the planning area through a Dougherty Road pipeline rather than a Crow Canyon Road pipeline.

The following proposed DVSP policy supports the project proponents' commitment to providing reclaimed water service to the planning area:

- Policy U-5: Provide for the use of a reclaimed water distribution system to irrigate parks, school grounds, and golf courses.

This impact is considered significant because the project would cause a substantial demand for water services to the planning area and would require the extension of water service to an area not currently planned for such services.

### **Mitigation Measure**

- 5.9: The County should require the developers to provide the planning area's pro rata share of all offsite recycled water service improvements necessary to serve the planning area. Although the recycled water to be used in the planning area would originate at DSRSD's wastewater treatment plant, the agency responsible for providing water service to the planning area would also have to distribute recycled water because of State requirements.
- 5.10: The County should require that all open space, median strip, and private lot landscaping consist of drought-tolerant, low-water-use plant species. The Contra Costa Community Development Department would be responsible for monitoring the success of this mitigation measure.

Implementation of mitigation measure 5.9 would reduce this impact to a less-than-significant level because it would ensure that the planning area's pro rata share of offsite recycled water service improvements would be provided. Mitigation measure 5.10 is recommended.

### **Impact: Need for a Recycled Water Distribution System**

Implementation of the project would create the need for an onsite recycled water distribution system to help offset the demand for potable water within the planning area. The recycled water distribution system conceptually designed by Brown and Caldwell that would serve the planning area is depicted in Figure 3-11.

This impact is considered significant because the project would cause a substantial demand for water services to the planning area and would require the extension of water services to an area not currently planned for such services.

## **Mitigation Measures**

- 5.4 and 5.8: These measures are described above.
- 5.11: The County should require the project proponents to develop all onsite recycled water service improvements necessary to serve the planning area. These improvements should be phased to make recycled water available for irrigation as schools and golf courses that would receive service are constructed. These improvements should be approved by DSRSD and the Community Development Department. The Community Development Department should require the preliminary development improvements for the Windemere and Shapell properties to incorporate these recycled water service improvements as a condition of approval if such improvements are found to be feasible. The Community Development Department and DSRSD would be responsible for monitoring the success of this mitigation measure.

Implementation of mitigation measures 5.4, 5.8, 5.9, and 5.11 would reduce this impact to a less-than-significant level because it would ensure that onsite recycled water service improvements would be provided.

## **Impact: Need for Drainage Infrastructure**

Implementation of the project would involve developing areas within the 100-year floodplain (refer to Chapter 10, "Hydrology and Water Quality"). The DVSP identifies in conceptual terms drainage infrastructure needed for the planning area. This impact is considered significant because the project would cause a substantial demand for drainage infrastructure and extension of these facilities to an area not currently planned for these services.

## **Mitigation Measure**

- 10.1-10.3: These mitigation measures are discussed in Chapter 10, "Hydrology and Water Quality".

Implementation of mitigation measures 10.1-10.3 would reduce this impact to a less-than-significant level because it would ensure that drainage infrastructure to maintain preproject runoff conditions would be provided.

## **Impact: Generation of Approximately 25,000 Tons of Solid Waste Per Year**

Implementation of the project would increase solid waste generation by approximately 25,000 tons per year (Table 5-9). Contra Costa County estimates that its landfills have less than a year of capacity and its contract to export solid waste to Solano County will expire in August. Additional landfill capacity is available at the recently opened Keller Canyon site. (Cutler pers. comm.)

Table 5-9. Solid Wasted Generated in the  
Dougherty Valley Planning Area

Land Use	DVDSP Proposed Area/Population	Solid Waste Generation Rate <sup>a</sup>	Total Solid Waste Generated (tons/year)
Residential	29,000 people	0.58 ton per year per person	16,820
Commercial	2,090,880 square feet <sup>b</sup>	0.18 ton per year per 100 square feet	<u>3,764</u>
Total			20,584

<sup>a</sup> Obtained from EIP Associates 1991.

<sup>b</sup> Assumes 48 acres of commercial area at 43,560 square feet/acre.

Source: PBR 1992.



This impact is considered significant because of the project would generate a substantial amount of solid waste that would decrease the life of the existing landfills.

### **Mitigation Measures**

- 5.12: The County should require development in the Dougherty Valley planning area to participate in the countywide curbside recycling program. Facilities to allow for the efficient collection of recyclable materials generated by residential and nonresidential land uses should be required by the County in DVSP preliminary or final development plans before granting approval. The design of these facilities should be developed by the solid waste collection company that is awarded the Dougherty Valley franchise area in cooperation with the Contra Costa County Community Development Department, the Contra Costa County Public Works Department, and the Contra Costa County Health Department. The Community Development Department would be responsible for monitoring the success of this mitigation measure.
- 5.13: The County should require development in the Dougherty Valley planning area to participate in the County's composting program, when implemented. Guidelines for sidewalk and street design to allow efficient collection of yard waste should be developed and implemented by the Community Development Department, the Contra Costa County Public Works Department, and the Contra Costa County Health Department in cooperation with the solid waste collection company that is awarded the Dougherty Valley franchise area. The County should require streets depicted in the preliminary development plans to be designed according to these guidelines as a condition of approval of the plans. The Community Development Department would be responsible for monitoring the success of this mitigation measure.

Implementation of mitigation measures 5.12 and 5.13 would reduce this impact to a less-than-significant level because these measures would prolong adequate disposal capacity at County landfills in accordance with Contra Costa County General Plan public services standards.

### **Impact: Demand for Solid Waste Collection Service**

Implementation of the project would create a demand for solid waste collection service. Although the planning area is not within the franchise area of a solid waste hauling company, the County would award a contract for this area to available firms through the bidding process.

This impact is considered less than significant because a solid waste hauling company could provide service for the planning area.

## **Mitigation Measure**

No mitigation is required because this impact is considered less than significant.

### **Impact: Need for Approximately Two CHP Patrol Positions to Provide Traffic-Related Law Enforcement Service**

Implementing the project would create the need for additional traffic-related law enforcement service. Based on the size of the project, the Dublin CHP office estimates that two additional CHP patrol positions would be required to provide adequate traffic enforcement to the planning area (Kerri pers. comm.). The Dublin CHP office does not anticipate receiving additional officers within the next 5-10 years (Kerri pers. comm.) and because officers are usually devoted to patrolling freeways, additional officers would probably not be assigned to patrol the planning area. This impact is considered significant because the project would cause a substantial demand for traffic-related law enforcement services.

Because of declining staffing levels and because it is unlikely that CHP will receive additional staff in the near future, traffic-related law enforcement service levels in the planning area will decline. Because traffic-related law enforcement is the legal responsibility of CHP, a state agency, no feasible local mitigation exists. Therefore, this impact is considered significant and unavoidable.

### **Impact: Need for Approximately Five County Sheriff's Deputies and Necessary Equipment**

Implementation of the project would generate a need for additional law enforcement. The Dougherty Valley planning area is patrolled by one deputy, which would not provide adequate law enforcement response for the project's proposed 29,000 residents (Snell, Mongsene pers. comms.) Based on current staffing levels elsewhere in the County, adequate law enforcement service would be provided by staffing Beat 14 full time, which would require approximately five additional sheriff's deputies.

According to general plan policy 7-57, 155 square feet of substation space would be required per 1,000 new residents, resulting in a need for approximately 4,500 square feet of substation space. The DVSP indicates that a sheriff's substation is planned in the planning area.

This impact is considered significant because the project would cause a substantial demand for sheriff services and because CCCSD has been experiencing reductions in staff and potentially would not be able to obtain deputies needed to provide adequate law enforcement protection to the planning area.

## **Mitigation Measures**

- 5.14: The developers should provide 4,500 square feet of substation space.

- 5.15: The County should provide a minimum of five sheriff's deputies and vehicles to provide non-traffic-related law enforcement service to the planning area. A preliminary hiring schedule for sheriff's deputies should be included in the preliminary development plan. The hiring schedule should be based on the emergency response criterion specified in general plan policy 7-59 and should identify a minimum of five deputies to be hired. The hiring schedule should also identify how each sheriff's deputy and related equipment would be provided. The hiring schedule should be approved by CCCSD and the Community Development Department. Response times within the planning area should be monitored by CCCSD to ensure that the response criterion in general plan policy 7-59 is being met. If CCCSD determines that this response criterion is not being met, additional law enforcement officers should be hired to ensure that the standard would be met. CCCSD and the Community Development Department would be responsible for monitoring the success of this mitigation measure.
- 5.16: The County should circulate development and open space management/improvement plans to CCCSD for review and incorporate feasible law enforcement recommendations before approval. If recommendations are deemed infeasible by the Community Development Department, CCCSD should be given a reasonable amount of time to produce alternative recommendations. CCCSD should comment on aspects of development plans, such as use of defensible space standards, visibility of address numbers from the street, lighting and landscaping of open space areas, and roadway design. CCCSD and the Community Development Department would be responsible for monitoring the success of this mitigation measure.

Implementation of mitigation measures 5.14-5.16 would reduce this impact to a less-than-significant level because additional sheriff's deputies and equipment would be provided to meet County public services performance standards.

#### **Impact: Need for Additional Fire Stations and Equipment**

Implementation of the project would increase the demand for fire stations and equipment. Stations 34 and 36 could provide adequate fire and emergency medical response to the northeastern and northwestern portions of the planning area. However, developing the project would place urban/suburban land uses at a distance of greater than 1.5 miles from the nearest fire station or into an area where response times would be greater than 5 minutes. General plan policies 7-62 and 7-63 state that all urban/suburban areas should be within 1.5 miles of a fire station or a 5-minute fire response. The general plan proposes a fire station in the core of the planning area (Figure 5-4).

The following proposed DVSP policy supports the project proponents' commitment to providing adequate fire protection service in the planning area:

- Policy CF-7: Provide a site for the development of a fire station within the village center.



This impact is considered significant because the project would cause a substantial demand for additional fire stations and equipment.

### **Mitigation Measures**

- 5.17: The project proponents should dedicate one fire station site and reserve a second site in the planning area. One fire station could probably provide sufficient fire response if roads were added to the Dougherty Valley Circulation Plan to interconnect core areas of the planning area (Probert pers. comm.). The County should condition the approval of the preliminary development plans on the incorporation of fire station site locations or residential sprinkler systems as needed to provide adequate fire response as defined by SRVFPD. The project proponents should negotiate with SRVFPD to develop circulation revisions to the planning area that would enable one fire station to provide adequate fire response to the planning area, or dedicate two fire station sites according to general plan policies 7-68 and 7-77. The project proponents should obtain SRVFPD's approval of the location and size of the fire station sites and the dimensions of the fire station and accessory buildings and should depict the fire stations sites on the preliminary development plan land use maps. Fire stations should be constructed to enable SRVFPD to continually meet the fire response standards set forth in general plan policies 7-62 and 7-63. SRVFPD and the Community Development Department would be responsible for monitoring the success of this mitigation measure.
- 5.18: The developers should construct the fire stations and fund acquisition of equipment needed to provide adequate fire and emergency medical response to the planning area. The number and type of equipment to be acquired should be approved by SRVFPD. This could include temporary fire stations, as specified in general plan policy 7-78, if approved by SRVFPD. SRVFPD and the Community Development Department would be responsible for monitoring the success of this mitigation measure.

Implementation of mitigation measures 5.17 and 5.18 would reduce this impact to a less-than-significant level because additional fire stations and equipment would be provided to meet County public services performance standards.

### **Impact: Need for Additional Firefighters**

Implementation of the project would increase the need for additional firefighters to staff equipment described above. This impact is considered less than significant because SRVFPD expects to obtain sufficient revenue to staff its fire stations from County property taxes revenue sources (Probert pers. comm.).

## **Mitigation Measure**

No mitigation is required because this impact is considered less than significant.

### **Impact: Increased Fire Hazards**

Implementation of the project would increase the danger of wildland fires resulting in property damage and human casualties. This would result primarily from the proximity of wildland vegetation and steep slopes within open space areas in relationship to new urban development introduced by the project (see Figure 5-6 for open space areas in relationship to development impact areas). This expanded interface between wildlands and developed areas increases the fire hazard posed to the new development. Fire hazards could also be created by poor building construction and improper management of residential vegetation.

The following proposed policies from the DVSP support the project proponents' commitment to reducing fire hazards.

- Policy U8: Incorporate measures that reduce the risk of urban and wildland fire hazards. Implementation Measure: Ensure fire protection through careful treatment of transitions between development and open space areas.
- Policy U9: Encourage the continuation of cattle grazing on major areas of land designated as open space.

This impact is considered significant because the project would cause a substantial demand for wildland fire protection services and wildland vegetation management above the level planned by SRVFPD.

## **Mitigation Measures**

- 5.17 and 5.18: These mitigation measures are described above.
- 5.19: SRVFPD should review all plans for development of the planning area (e.g., preliminary, final, and neighborhood development plans and subdivision maps). SRVFPD should recommend the incorporation of fire breaks, fire buffers, fire roads, noncombustible roofing, sprinklers, and other measures, where feasible and necessary to reduce fire hazards, into the plan designs. The Community Development Department should condition the approval of the plans on the incorporation of these recommendations. If the department determines these recommendations to be infeasible, it should obtain a feasible alternative from SRVFPD to be incorporated into the development.
- 5.20: The East Bay Regional Parks District (EBRPD) or other responsible open space management agency should incorporate fire prevention measures approved

by SRVFPD into its management of planning area open space areas (refer to mitigation measure 5.27 below). These fire prevention measures could include fire breaks, grazing intensities, weed abatement strategies, controlled burns, access roads (according to general plan policies 7-73 and 7-80), or other measures to reduce fire hazards.

Implementation of mitigation measures 5.17-5.20 would reduce this impact to a less-than-significant level because the increase in fire hazards would be compensated by these measures to meet County performance standards.

#### **Impact: Need for Electric Service**

Implementation of the project would increase demand for electric service. This impact is considered less than significant because PG&E anticipates that it would be able to serve the planning area from the Tassajara or San Ramon substations (DeYoung pers. comm.) and because it would recover costs of providing electrical service through developer and user fees.

#### **Mitigation Measure**

No mitigation is required because this impact is considered less than significant.

#### **Impact: Conflict with the PG&E Utility Line Easement**

Implementation of the project could conflict with the PG&E utility line easement. This impact is considered less than significant because the planning area land uses would be distributed to avoid this easement. Chapter 4, "Land Use", contains a more detailed discussion of this impact.

#### **Mitigation Measure**

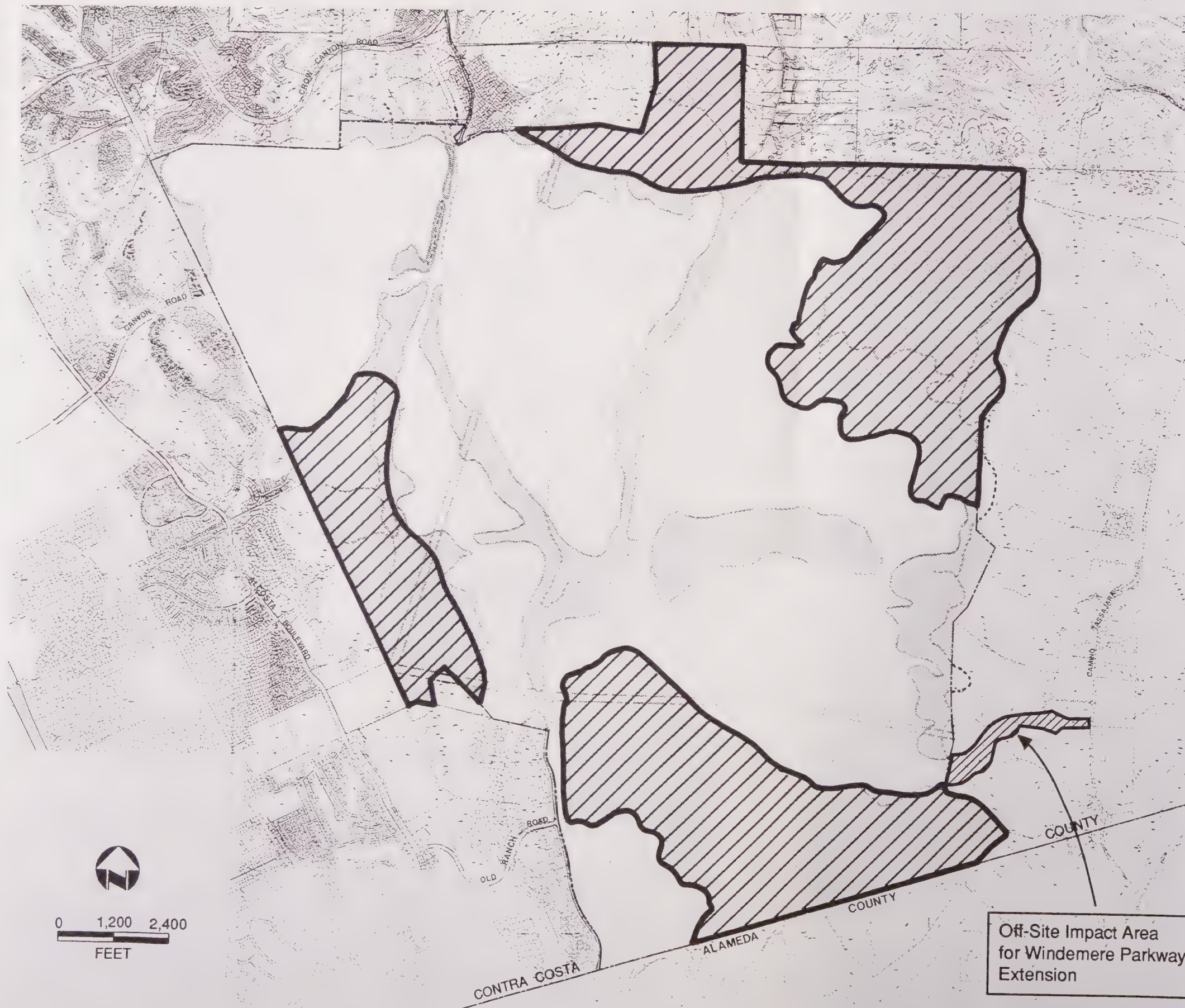
No mitigation is required because this impact is considered less than significant.

#### **Impact: Need for Gas Service**




Implementation of the project would increase the demand for gas service. PG&E anticipates that it could serve the planning area from its Mission Division following an upgrade of the existing gas main in Dougherty Road to 12 inches. This impact is considered less than significant because PG&E expects to be able to serve the planning area after upgrading an existing gas main and because PG&E would recover costs of extending service through developer and user fees.



Figure 5-6.  
Unimproved Open Space  
in the Dougherty Valley  
Planning Area



**LEGEND**

-  Proposed for Management by a Public Agency
-  Developed Impact Area (Mass Grading)
-  Areas in Which Grading Will Be Limited to Development of Special Facilities

Off-Site Impact Area  
for Windemere Parkway  
Extension

Source: PBR 1992, Cutler and Lindenmeyers  
pers. comms.



### **Mitigation Measure**

No mitigation is required because this impact is considered less than significant.

### **Impact: Need for Telephone Service**

Implementation of the project would increase demand for telephone service. Pacific Bell estimates that the planning area could be served from existing facilities or with onsite improvements (Johnson pers. comm). This impact is considered less than significant because Pacific Bell does not anticipate problems extending service to the planning area and because it would recover costs of providing telephone facilities through developer and user fees.

### **Mitigation Measure**

No mitigation is required because this impact is considered less than significant.

### **Impact: Need for Cable Television Service**

Implementation of the project would increase demand for cable television service. ViaCom, Inc. and Ponderosa Cable, Inc. each anticipate they will be able to extend service to the planning area after receiving approval for their pending franchise area expansion applications (Dittrich and Burke pers. comm.). Both of these companies, or possibly another company that would serve only the planning area, would be awarded the planning area franchise (Burke pers. comm.). This impact is considered less than significant because ViaCom, Inc. or another cable television company would be able to provide service to the planning area and because the cable company would finance the cost of providing cable facilities with user fees.

### **Mitigation Measure**

No mitigation is required because this impact is considered less than significant.

### **Impact: Need for Additional School Facilities to Accommodate 2,618 Elementary School, 1,241 Middle School, and 2,068 High School Students**

Implementation of the project would generate a need for additional public school facilities because of new residents moving to the area (Table 5-10). According to the SRVUSD and the DVSP, four elementary schools, two middle schools, and one high school would be needed to serve the planning area (PBR 1992, Learned pers. comm.) because other SRVUSD facilities are near capacity (Tables 5-11 and 5-2). Although the SRVUSD would collect approximately \$38 million in state-authorized AB 2926 developer fees, the



Table 5-10. New Students in the Dougherty Valley Planning Area

Land Use	Number of Dwelling Units <sup>a</sup>	Number of Students per Dwelling Unit <sup>b</sup>			Number of Students		
		Elementary Schools	Middle Schools	High Schools	Elementary Schools	Middle Schools	High Schools
Single-family residential	7,589	.3	.15	.25	2,277	1,138	1,897
Multifamily residential	3,411	.1	.03	.05	<u>341</u>	<u>102</u>	<u>171</u>
Total					2,618	1,241	2,068

<sup>a</sup> Obtained from PBR 1991.

<sup>b</sup> Obtained from Learned pers. comm.

Table 5-11. School Facilities Needed to Serve the  
Dougherty Valley Planning Area

School Type	Number of Students	Number of Students per School	Number of Schools Needed
Elementary	2,618	650	4
Middle	1,241	850	2
High	2,068	1,700	1

Source: PBR 1992, Learned pers. comm.

above facilities would cost approximately \$111 million. Also, sites for two elementary schools and one middle school and funding for construction of one elementary school and Shapell's pro rata share of the high school would be provided by its December 13, 1988 agreement with SRVUSD. However, funding for the construction of two elementary schools, one middle school, and the Windemere pro rata share of the high school would need to be obtained from another source.

The following proposed DVSP policies support the project proponents' commitment to providing adequate school facilities for future planning area residents:

- Policy CF-2: Provide new schools to serve Dougherty Valley students, which are conveniently accessible via a network of streets, pathways, and trail connections.

This impact is considered significant because the project would cause a substantial demand for school facilities to serve the planning area above SRVUSD's plans to accommodate.

### **Mitigation Measures**

- 5.21: The Contra Costa County Community Development Department should require the project proponents to dedicate land needed for the seven primary and secondary school facilities to the SRVUSD as a condition of approval of the preliminary development plans. Each school site should:
  - be dedicated before construction of the corresponding school facility is scheduled to begin;
  - conform to the size guidelines set by the SRVUSD; and
  - be located with the approval of the district and shown on the preliminary development plan land use maps.

The SRVUSD and the Community Development Department would be responsible for monitoring the success of this mitigation measure.

- 5.22: The Community Development Department should condition the approval of preliminary, final, and neighborhood development plans on the availability of adequate school facilities. Availability of school facilities would be indicated in a "will serve" letter from the SRVUSD describing the school facilities that would be needed and how capacity would be provided. The Community Development Department and the SRVUSD would be responsible for monitoring the success of this mitigation measure.

Implementation of mitigation measures 5.21 and 5.22 would reduce this impact to a less-than-significant level because additional school facilities needed to accommodate new



students in the planning area would be dedicated and provided to meet County public services performance standards.

**Impact: Need to Accommodate Approximately 1,329 Community College Students**

Implementation of the project would bring in new community college students at a rate of approximately 61.1 students and 1,000 adults, which is CCCC'D's countywide participation rate. Because the planning area would have a buildout population of approximately 29,000 people, approximately 1,329 of those are expected to be community college students (assuming that adults are 75% of the population). The CCCC'D has identified the San Ramon Valley, which includes the planning area, as a preferred location for a new community college (Howtrow pers. comm.). The DVSP incorporates this goal by reserving approximately 150 acres of the Camp Parks area for a future community college site (PBR 1992). However, the U.S. Army recently informed CCCC'D that it does not intend to release lands within Camp Parks in the near future; instead, training activities at Camp Parks may intensify because of the closure of other bases (Howtrow pers. comm.).

The Community Development Department, Danville, San Ramon, and CCCC'D are discussing alternative locations for a San Ramon Valley Community College. These agencies identified eight potential sites for further evaluation; all eight sites are privately owned. To assess the feasibility of the sites, CCCC'D is planning to gather data on the physical characteristics of the sites, landowner intended uses, and other characteristics. (Howtrow pers. comm.)

This impact is considered significant because the project would cause a substantial demand for community college services and a community college site will probably not be available in the planning area in the near future.

**Mitigation Measures**

- 5.23: The Community Development Department, CCCC'D, San Ramon, and Danville should continue to work together to identify and develop an appropriate site for a community college in the San Ramon Valley.
- 5.24: The project proponents should remove the proposed junior college land use on Camp Parks from the DVSP land use plan and text because this site would not be available in the near future.

Implementation of mitigation measures 5.23 and 5.24 would partially reduce this impact but this impact is significant and unavoidable because a new campus cannot be guaranteed.

## **Impact: Need for Childcare Facilities**

Implementation of the project would create a need for childcare facilities. Facilities for children attending grades K-6 would be planned by the SRVUSD and operated by Kids' Country. However, facilities for preschool-aged and middle-school-aged children would also be needed.

The following proposed policy from the DVSP support the project proponents' commitment to providing childcare facilities.

- Policy CF3: Provide child care facilities at locations that allow easy access, convenience, and multi-purpose use of available facilities, such as schools.

This impact is considered significant because the project would cause a substantial demand for childcare facilities for preschool- and middle school-aged children in the planning area.

## **Mitigation Measures**

- 5.25: The Community Development Department should require the project proponents to ensure that childcare facilities are provided to serve the planning area according to the County's childcare ordinance as a condition of approval of neighborhood development plans. Each neighborhood development plan should indicate how needs for childcare estimated by the San Ramon Valley School Age Child Care Alliance, the SRVUSD, and the Community Development Department would be met. This could include identifying capacity at existing planning area childcare centers or dedicating and ensuring the construction of additional facilities. Childcare facilities should be located on school sites or transit routes and within 0.25 mile of the schools that the children housed at that facility attend and according to general plan policies 7-151, 7-152, and 7-155.

The SRVUSD, the Community Development Department, and the San Ramon Valley School Age Child Care Alliance would be responsible for monitoring the success of this mitigation measure.

- 5.26: The SRVUSD should plan a before- and after-school childcare facility on the existing middle school site within the planning area. The construction of this facility would be financed by a licensed childcare provider identified by the project proponents in the neighborhood development plan that included the middle school site. The SRVUSD would be responsible for monitoring the success of this mitigation measure.

Implementation of mitigation measures 5.25 and 5.26 would reduce this impact to a less-than-significant level because adequate childcare facilities would be provided to serve the planning area to meet County performance standards.

## **Impact: Need for Managed Open Space**

Implementation of the project would create a need for managed open space. Approximately 2,033 acres of the planning area would be devoted to unimproved open space (Figure 5-6), which would need to be managed to prevent a fire hazard. EBRPD has given a preliminary indication that it would be interested in managing one large open space area and any lands contiguous to Tassajara Creek Open Space that are now within Camp Parks if they were to become available in the future (Figure 3-2). These are the only open space areas that would potentially meet EBRPD's current criteria for its "regional open space" recreation area designation. The other two smaller open space areas also may be potentially managed by EBRPD. (Lindenmeyer, Cutler pers. comms.)

The following DVSP policies support the project proponents' commitment to managing open space:

- Policy LU-11: Establish public and homeowners' association recreational uses in areas where environmental features can be enjoyed and enhanced by the recreational use.
- Policy OSC-1: Create a region-serving open space system, which traverses the major perimeter ridges of Dougherty Valley and establishes a continuous network of open space corridors offering visual and physical links to the regional open space system.
- Policy OSC-2: Set aside at least 55% of both the Shapell and Windemere properties as parks or open space lands.
- Policy OSC-3: Keep the perimeter ridges open and unobstructed, with minimum development for recreational use only.
- Policy OSC-4: Enhance the habitat value of the ridges and their potential to support a diversity of wildlife.
- Policy OSC-5: Provide staging areas for the ridgetop trail system at key locations for trail access, parking, maintenance, and interpretive signage. Design these staging areas to serve jointly as park and ride facilities.
- Policy OSC-6: Establish viewshed buffer zones of a minimum of one hundred feet between the major ridgetops and the development areas.
- Policy OSC-7: Reinforce the visual prominence and wildlife value of significant creek corridors and provide for multiple active and passive recreational uses.
- Policy OSC-8: Establish a primary creek corridor system to serve as a multi-purpose linear greenway and storm water management system.



- Policy OSC-9: Establish a hierarchy of creek improvements that reflect the role and importance of individual drainages and which add to the identity, amenity, and biologic diversity of the valley.
- Policy OSC-10: Stabilize the creeks, utilizing a combination of vegetation and environmentally sensitive stabilization techniques.
- Policy OSC-11: Allow the linear creek corridor to be publicly visible and accessible from surrounding areas.

This impact is considered significant because the project would cause a substantial demand for management of open space to implement the policies of the DVSP.

### **Mitigation Measure**

- 5.27: The County should ensure that the open space areas depicted in Figure 5-6 would be managed by EBRPD or another appropriate agency. Management activities should include, but not be limited to, construction and maintenance of trail staging areas, creek corridor improvements, habitat improvement, maintenance of trails and firebreaks, management of grazing contracts, weed abatement, and maintenance of a buffer between the open space and adjacent land uses. Activities related to fire prevention should be approved by SRVFPD. SRVFPD, EBRPD, and the Contra Costa County Community Development Department would be responsible for monitoring the success of this mitigation measure.
- 5.28: The County should ensure that one or more maintenance facilities for equipment storage to maintain the open space are located in the preliminary development plans and constructed. The locations for these facilities should be reviewed and approved by the open space management agency responsible for the planning area.

Implementation of mitigation measures 5.27 and 5.28 would reduce this impact to a less-than-significant level because open space management services would be provided to meet County performance standards.












### **Impact: Need for A Regional Trail Easement along the Eastern Boundary of the Planning Area**

Implementation of the project would create the need for a regional trail along the eastern boundary of the planning area because this trail is shown on the Contra Costa County General Plan trails map (Figure 5-5). Although the DVSP incorporates another trail (Figure 5-7), the eastern trail alignment extends off the Windemere property in three locations. The DVSP does not propose a means for trail easements on the adjacent lands or how the adjacent lands themselves would be acquired to allow the trail to be constructed.

Figure 5-7.  
Parks and Other Recreation  
Improvements



## LEGEND

-  COMMUNITY PARK
-  NEIGHBORHOOD PARK
-  NEIGHBORHOOD PARK ON SCHOOL SITE
-  POCKET PARK
-  PARK WITH EXISTING FEATURE  
(1) STOCKPOND (2) VIEWPOINT (3) SEEP (4) SPRINGFEED STOCKPOND
-  CREEK CORRIDOR
-  PEDESTRIAN LINKS-  
ON OR OFF STREET TRAIL
-  ENHANCED PARKWAY
-  NATURE TRAIL
-  MAJOR TRAILS OR PATHS
-  STAGING AREA







This impact is considered significant because the project proponents do not control the portions of the trail easement outside the planning area and cannot ensure that the trail could be constructed as shown on Figure 5-7.

### **Mitigation Measures**

- 5.29: The project proponents should either revise the alignment of the trail easement so that it is entirely within the planning area or delete the portions of the trail that extend east of the Windemere property to indicate that these portions of the trail easement would not be available unless other steps were taken to secure them. This mitigation measure should be implemented before adoption of the DVSP. The Community Development Department and EBRPD would be responsible for monitoring the success of this mitigation measure.
- 5.30: EBRPD should acquire offsite easements from the landowners east of the Windemere property or the properties themselves to allow the regional trail east of Dougherty Road to be constructed as shown in Figure 5-7 or a temporary trail shall be located on planning area lands until the necessary easements can be acquired. This mitigation measure should be implemented as soon as EBRPD is able to connect this trail section into the constructed portions of the trail. EBRPD and the Community Development Department would be responsible for monitoring the success of this mitigation measure.
- 5.31: The County should establish a landscape and lighting district or Mello-Roos community facilities district to finance the maintenance of the regional trail east of Dougherty Road and its corresponding staging area. This mitigation measure should be implemented as soon as EBRPD is able to connect this trail section into the constructed portions of the trail. EBRPD and the Community Development Department would be responsible for monitoring the success of this mitigation measure. The developers shall be responsible for financing trail construction.

Implementation of mitigation measures 5.29-5.31 would reduce this impact to a less-than-significant level because the need for a regional trail easement along the eastern boundary of the planning area would be met.

### **Impact: Need for 43.5 Acres of Neighborhood Parkland and 72.5 Acres of Community Parkland**

Implementation of the project would create a need for neighborhood and community parkland. The DVSP indicates that the project proponents would provide 405-481 acres of neighborhood, community, and "pocket" parks; creek corridors; and staging areas. Construction and maintenance of such facilities is not addressed. In addition, although the DVSP identifies 72 acres of community parkland, 72.5 acres are needed to meet County standards according to general plan implementation measure 9-r.

The following policies support the project proponents' commitment to providing parkland facilities:

- Policy OSC-11: This policy is stated above.
- Policy LU-12: Provide for a variety of public and private recreational uses that are accessible to Dougherty Valley residents and visitors.
- Policy CF-4: Develop a wide range of park facilities to serve Dougherty Valley community recreational needs.

This impact is considered significant because the project would create a substantial demand for park facilities to implement the policies of the DVSP.

### **Mitigation Measures**

- 5.32: The County should require the project proponents to dedicate land for the parks identified on Figure 5-7 and build facilities according to the general plan standards in Table 5-3 and the County park dedication ordinance. Parks should be dedicated according to their locations on Figure 5-7 and constructed to maintain the 4 acres per 1,000 population parkland standard identified in general plan goal 4-K. The Community Development Department and the parks district identified in mitigation measure 5.26 would be responsible for monitoring the success of this mitigation measure.
- 5.33: The County should form a Mello-Roos or landscape and lighting district to manage the parks and recreational facilities and resources in the planning area, excluding those areas managed by EBRPD or another public agency. This mitigation measure should be implemented as soon as possible after development is initiated in the planning area. The Community Development Department would be responsible for monitoring the success of this mitigation measure.

Implementation of mitigation measures 5.32 and 5.33 would reduce this impact to a less-than-significant level because neighborhood and community park facilities would be provided to meet County public service performance standards.

## **Chapter 6. Circulation**

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### **INTRODUCTION**

This chapter is based on a traffic analysis prepared by TJKM Transportation Consultants (TJKM). The traffic study in its entirety is contained in Appendix D-1. The technical appendices supporting the traffic study immediately follow Appendix D-1 and are arranged as follows:

- Appendix D-2. Level of Service Definitions,
- Appendix D-3. Existing Intersection Conditions,
- Appendix D-4. Traffic Model Development and Validation,
- Appendix D-5. Planned Highway Improvements,
- Appendix D-6. Year 2000 Level of Service Calculations,
- Appendix D-7. Year 2010 Level of Service Calculations,
- Appendix D-8. Cumulative Level of Service Calculations, and
- Appendix D-9. Mitigated Level of Service Calculations.

### **SETTING**

The transportation and circulation analysis in the DVSP focuses on regional access to the Dougherty Valley planning area and internal circulation within Dougherty Valley. This setting section describes the existing critical roads, highways, and intersections in the study area (Figure 6-1); current traffic volumes and system performance level; and existing transit systems.

#### **Regional Roadway Network**

Dougherty Valley is located approximately 2 miles from the regional freeway system. Although access to and from Dougherty Valley will rely on arterial routes for local and regional travel, the overall level of service (LOS) of this local street system will be determined where the arterial routes connect to the freeway system at interchanges within the planning area.





Figure 6-1. Critical Roadway Segments and Intersections

Source: TJKM 1992

Recent traffic counts on planning area freeways and streets are shown in Figures 6-2 and 6-3. The freeway system will provide primary regional traffic access to Dougherty Valley. The two area freeways are I-580 and I-680 and are described below.

### **Interstate 580**

I-580 is an eight-lane freeway running east-west about 2 miles south of Dougherty Valley. To the east, I-580 provides access to eastern Alameda County, including Dublin, Pleasanton, Livermore, and serves San Joaquin County further east. To the west, I-580 serves the Hayward, San Leandro, and East Bay areas.

Housing and employment growth in the Tri-Valley region during the 1980s has changed freeway conditions from relatively free-flow operation to somewhat congested operation during peak periods. Particularly on I-580, the rapid housing growth in the San Joaquin Valley has caused traffic to the Tri-Valley region, Santa Clara County, and East Bay areas to increase by 61% between 1984 and 1990 (Appendix D-1). Existing peak-period congestion on I-580 occurs mostly for eastbound travel in the afternoon at Hopyard Road and Santa Rita Road because of heavy merging volumes.

Recent improvements to I-580 have helped to better serve the growing traffic volumes in this corridor. Interchange improvements at Hopyard Road, Santa Rita Road, Dougherty Road, Tassajara Road, and I-680 and construction of a new interchange at Hacienda Drive have substantially improved the LOS in the regional area. As part of these projects, auxiliary lanes were also constructed, which added capacity to the existing segments.

### **Interstate 680**

I-680 is a six-lane freeway running north-south about 2 miles west of Dougherty Valley. To the north, I-680 provides access to central Contra Costa County and Solano County and serves Dublin, Pleasanton, Fremont, and Santa Clara County to the south.

The key bottleneck for freeway travel in the Tri-Valley region historically has been the interchange between I-580 and I-680. I-680 also becomes congested within Danville and north of Livorna Road through the State Route 24 interchange in Walnut Creek.

Traffic volumes on I-680 north of Alcosta Boulevard increased by 56% from 70,000 daily vehicles in 1984 to 109,000 daily vehicles in 1990. Similar growth has occurred on other sections of I-680 within the planning area.

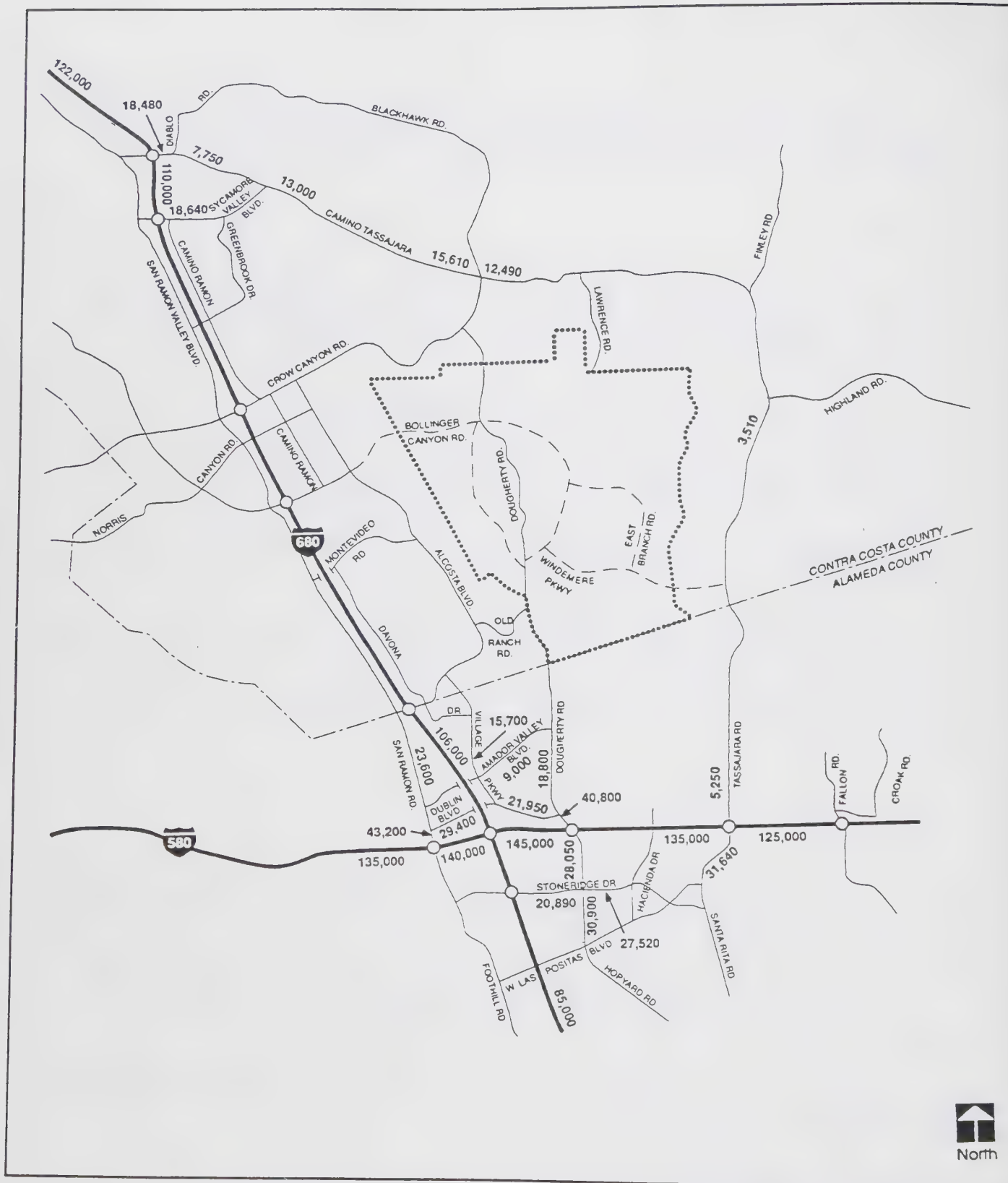


Figure 6-2. Existing Tri-Valley Volumes

Source: TJKM 1992





Figure 6-3. Existing Dougherty Valley Planning Area Traffic Volumes

Source: TJKM 1992

## **Local Roadway Network**

Dougherty Valley residents will rely on local arterial roads to travel to and from the regional freeways and other developed areas. Several freeway interchanges of the local roadway network provide access to the Tri-Valley region and include the Diablo Road and Sycamore Valley Road interchanges on I-680 in Danville; the Crow Canyon Road, Bollinger Canyon Road, and Alcosta Boulevard interchanges on I-680 in San Ramon; and the Dougherty Road, Hacienda Drive, and Tassajara Road interchanges on I-580. Existing traffic volumes for the local roadway network are shown on Figure 6-3.

The most important access routes will be Bollinger Canyon Road for destinations to the west and north and Dougherty Road and Tassajara Road for destinations to the south and east. The relative importance of other access routes will vary depending on regional conditions and the orientation of local circulation within Dougherty Valley. The following local roadways are analyzed:

- Dougherty Road,
- Tassajara Road,
- Alcosta Boulevard,
- Bollinger Canyon Road,
- Crow Canyon Road,
- San Ramon Valley Boulevard,
- Old Ranch Road,
- Camino Ramon,
- Camino Tassajara,
- Sycamore Valley Road, and
- Dublin Boulevard.

## **Dougherty Road**

Dougherty Road is a north-south road that extends from I-580 in Dublin to Crow Canyon Road in San Ramon. It is currently the only road through Dougherty Valley, carrying over 6,000 vehicles per day south of Old Ranch Road. In the vicinity of Dougherty Valley, Dougherty Road is a two-lane road in poor condition between Old Ranch Road and the recently widened section just south of Crow Canyon Road. Dougherty Road provides the most direct access between Dougherty Valley and I-580, Hacienda Business Park, and the City of Pleasanton. Dougherty Road is one of two freeway accesses from I-580 to the commercial areas along Dublin Boulevard, and it has corresponding high traffic volumes on the section near Dublin Boulevard and I-580 (38,700 vehicles per day).

Dougherty Road is generally planned to be widened to a six-lane facility. The Contra Costa County General Plan shows that Dougherty Road is designated as an expressway facility. The San Ramon General Plan indicates that Dougherty Road would be rebuilt as

a four-lane facility, with ROW reserved for potential widening to six lanes. It is currently being widened to four lanes south of Old Ranch Road. The Dublin General Plan indicates that Dougherty Road is planned for six lanes. South of Old Ranch Road in Dublin, Dougherty Road has been widened to four lanes. Further widening to six lanes will require negotiations with the federal government to secure ROW in the Camp Parks area.

Dougherty Road changes names to Hopyard Road south of I-580 in Pleasanton, which is a six-lane arterial road that carries about 31,000 vehicles per day. Alternative freeway access from Hopyard Road is available to I-680 via Stoneridge Drive.

### **Tassajara Road**

Tassajara Road is the continuation of Camino Tassajara on the north and east sides of Dougherty Valley. It connects with I-580 and continues as Santa Rita Road in Pleasanton south of I-580. Tassajara Road is currently a two-lane rural road over most of its length. Within the Alameda County portion of Tassajara Road, current planning by the City of Dublin for the East Dublin Specific Plan provides for a direct connection between Tassajara Road and an extension of Fallon Road south of the Alameda County line. Both Tassajara Road and the Fallon Road extension will provide four lanes north of Dublin Boulevard.

### **Alcosta Boulevard**

Alcosta Boulevard is a four-lane arterial road from Crow Canyon Road to San Ramon Valley Boulevard in the southern portion of San Ramon. This roadway serves as a collector route for residential areas east of I-680 in San Ramon, providing a direct connection with I-680 north of the I-580/I-680 interchange. Currently, Alcosta Boulevard carries nearly 8,000 vehicles per day near Old Ranch Road with over 24,000 vehicles near the I-680 interchange.

Traffic is expected to increase at the Alcosta Boulevard/I-680 interchange in the future, as it serves future development in the southern San Ramon and Westside areas. The City of San Ramon has initiated a project study report in cooperation with the California Department of Transportation (Caltrans) to identify possible improvements to the Alcosta Boulevard interchange.

### **Bollinger Canyon Road**

Bollinger Canyon Road is an arterial road that extends from the northwest corner of San Ramon to its eastern terminus in the Canyon Lakes area near the western edge of Dougherty Valley. It provides direct freeway access for the southern portions of Bishop Ranch and Canyon Lakes. The San Ramon General Plan indicates that Bollinger Canyon



Road will be extended as a four- or six-lane arterial to connect with Dougherty Road. When extended, Bollinger Canyon Road will provide the most direct access between Dougherty Valley and I-680 and Bishop Ranch. Because Bollinger Canyon Road is also a primary freeway access route for Bishop Ranch, about 37,000 vehicles per day use this road east of the I-680 freeway interchange.

Bollinger Canyon Road is currently designed to accommodate six through lanes plus turn lanes west of Alcosta Boulevard, increasing to eight through lanes near the I-680 freeway interchange. Bollinger Canyon Road has four lanes west of Alcosta Boulevard to Canyon Lakes Drive. There are several physical constraints to widening Bollinger Canyon Road beyond the current four lanes east of Alcosta Boulevard. These constraints include a large fountain on the southeast corner of Alcosta Boulevard and Bollinger Canyon Road, an overpass for golf carts that crosses Bollinger Canyon Road 1,800 feet east of Alcosta Boulevard, extensive landscaping along the roadway, and structures at the intersection with Canyon Lakes Drive. In addition, the existing 8% grade of Bollinger Canyon Road would present a constraint to road widening or engineering this route for a light rail system as proposed in the DVSP.

### **Crow Canyon Road**

Crow Canyon Road is a major east-west arterial running from I-580 in Castro Valley to Camino Tassajara in Danville. It provides a direct route to I-680, as does Bollinger Canyon Road, and serves as the primary route to the commercial areas near the I-680/Crow Canyon Road interchange.

Crow Canyon Road carries high traffic volumes (over 40,000 daily vehicles) due to its direct connection with I-680 and access roads to Danville. Improvements at the Crow Canyon Road interchange were completed in 1990. The improvements have consolidated the freeway off-ramps and increased the capacity of this interchange.

### **San Ramon Valley Boulevard**

San Ramon Valley Boulevard is a four-lane road that runs north-south parallel to I-680 from Camino Tassajara in Danville to Alcosta Boulevard in San Ramon at the Contra Costa County/Alameda County line. South of Alcosta Boulevard, San Ramon Valley Boulevard becomes San Ramon Road; north of Camino Tassajara, it becomes Danville Boulevard. San Ramon Valley Boulevard serves the areas on the west side of I-680 and provides an alternate route to I-680. It also provides direct access to I-580 in Dublin. North of Crow Canyon Road, this roadway carries about 15,000 vehicles per day.

## **Old Ranch Road**

Old Ranch Road is a four-lane, east-west road that connects Dougherty Road and Alcosta Boulevard. This roadway primarily serves residential areas in San Ramon with its connection to I-680 via Alcosta Boulevard and would provide the most direct connection to I-680 for the southern portions of Dougherty Valley.

## **Camino Ramon**

Camino Ramon is a four-lane, north-south collector roadway running between Bollinger Canyon Road and Fostoria Way in San Ramon. North of Fostoria Way, Camino Ramon aligns with Crow Canyon Place extending to Sycamore Valley Road in Danville. This roadway serves the businesses in the Bishop Ranch Park area in San Ramon and distributes the traffic onto Bollinger Canyon Road and Crow Canyon Road. North of Fostoria Way, Camino Ramon serves as a local roadway for residential areas in Danville.

## **Camino Tassajara**

Camino Tassajara is an arterial extending from Diablo Road to Crow Canyon Road in Danville. East of Crow Canyon Road, Camino Tassajara becomes Tassajara Road. Camino Tassajara currently has four lanes over most of its length, carrying over 15,000 vehicles per day and providing connections to I-680 via Sycamore Valley and Diablo Roads.

Travel between Dougherty Valley and the Danville/Alamo area will be most likely to use Dougherty Road and Crow Canyon Road to Camino Tassajara. Improvements at the Sycamore Valley Road interchange were completed in 1988. The improvements included widening the overpass from two to four lanes and constructing a sound wall.

## **Sycamore Valley Road**

Sycamore Valley Road is a four-lane east-west arterial extending from Camino Tassajara to San Ramon Valley Boulevard in Danville. This roadway provides direct access to I-680 for residential areas along Camino Tassajara and San Ramon Valley Boulevard.

## **Dublin Boulevard**

Dublin Boulevard is a major east-west arterial in Dublin running from San Ramon Road to Dougherty Road. Scarlett Court is a two-lane extension of Dublin Boulevard to the east of Dougherty Road serving local businesses up to the Southern Pacific Railroad ROW. Dublin Boulevard serves as the most direct access road to I-580 and I-680 for

businesses located along this arterial. Access to I-580 is provided from Dublin Boulevard via San Ramon Road and Dougherty Road. Dublin Boulevard is planned to be extended easterly to serve the East Dublin Specific Plan area, with connections to Hacienda Drive and Tassajara Road.

### **Critical Intersections**

Twenty-two signalized intersections and three unsignalized intersections were identified as critical to the project. The signalized intersections include:

- I-680 southbound off-ramp/Diablo Road,
- I-680 northbound off-ramp/Diablo Road,
- Camino Tassajara/Diablo Road,
- I-680 southbound off-ramp/Sycamore Valley Road,
- I-680 northbound off-ramp/Sycamore Valley Road,
- Sycamore Valley Road/Camino Tassajara,
- Blackhawk Road/Camino Tassajara,
- I-680 southbound off-ramp/Crow Canyon Road,
- I-680 northbound off-ramp/Crow Canyon Road,
- Alcosta Boulevard/Crow Canyon Road,
- Dougherty Road/Crow Canyon Road,
- I-680 southbound off-ramp/Bollinger Canyon Road,
- I-680 northbound off-ramp/Bollinger Canyon Road,
- Camino Ramon/Bollinger Canyon Road,
- Alcosta Boulevard/Bollinger Canyon Road,
- I-680 southbound off-ramp/Alcosta Boulevard,
- I-680 northbound off-ramp/Alcosta Boulevard,
- Dougherty Road/Dublin Boulevard,
- Dougherty Road/I-580 westbound off-ramp,
- Hopyard Road/I-580 eastbound off-ramp,
- Tassajara Road/I-580 westbound off-ramp, and
- Santa Rita Road/I-580 eastbound off-ramp.

The three unsignalized intersections analyzed in the traffic study include Camino Tassajara/Highland Road, Alcosta Boulevard/Old Ranch Road, and Dougherty Road/Old Ranch Road. The LOS for the signalized and unsignalized intersections are listed in Tables 6-1 and 6-2, respectively, and are shown in Figure 6-1.



## **Intersection Conditions**

Intersection performance during peak hours is described by the LOS, which is used as a measure of an intersection's ability to accommodate conflicting traffic flows. For a given intersection, LOS ranges from A (excellent) to F (heavily congested). LOS definitions for signalized and unsignalized intersections are provided in Appendix D-2. The existing LOS at the critical intersections was determined for the current (1991) peak-hour volumes, traffic capacity, and traffic control. The maximum number of critical movements assumed for LOS E conditions (for a two-phase signal) is 1,800 vehicles per hour. The LOS calculations for signalized intersections are based on the procedures described in Contra Costa Transportation Authority (CCTA) Technical Procedures for Level of Service Analysis.

All signalized intersections in the study area operate at LOS C or better during the a.m. peak hour (Table 6-1). During the p.m. peak hour, the intersection of the I-680 northbound ramps at Alcosta Boulevard and the intersection of Dougherty Road and Dublin Boulevard operate at LOS D. Recent improvements completed at the I-580 interchange with Tassajara Road/Santa Rita Road have substantially improved the peak-hour conditions at this location so that they now operate at LOS B or better.

The three unsignalized intersections in the study area operate at LOS C or better during both a.m. and p.m. peak hours (Table 6-2). The intersection at Alcosta Boulevard and Old Ranch Road is controlled by a three-way stop sign and operates satisfactorily (LOS A or B) during both a.m. and p.m. peak hours. The other two locations are controlled by a one-way stop sign on the cross-street approach. Current volumes at these locations permit turning movements across conflicting traffic without significant delays.

## **Existing Transit**

The planning area is not served by public transit. Transit service in the Tri-Valley region is provided by two local transit agencies and BART express buses (Figure 6-4). The Central Contra Costa Transit Authority (CCCTA) provides service in Central Contra Costa County, and the Livermore-Amador Valley Transit Authority provides service in Alameda County. Transit service between Dougherty Valley and points in Alameda County will cross normal service area boundaries.

### **Central Contra Costa Transit Authority**

The CCCTA provides local bus service to Danville and San Ramon, with service concentrated along the I-680 corridor. The primary route in the corridor, Route 121, carries about 900-1,000 passengers per day. The CCCTA service area does not extend south of the Contra Costa County line. Service between Dougherty Valley and Pleasanton is outside the

Table 6-1. Existing Intersection Conditions at Signalized Locations

Intersection Number*	North-South Street	East-West Street	A.M. Peak Hour		P.M. Peak Hour	
			V/C Ratio	LOS	V/C Ratio	LOS
1	I-680 southbound off-ramp	Diablo Road	0.55	A	0.49	A
2	I-680 northbound off-ramp	Diablo Road	0.61	B	0.58	A
3	Camino Tassajara	Diablo Road	0.59	A	0.53	A
4	I-680 southbound on/off-ramp	Sycamore Valley Road	0.45	A	0.49	A
5	I-680 northbound on/off-ramp	Sycamore Valley Road	0.53	A	0.45	A
6	Sycamore Valley Road	Camino Tassajara	0.41	A	0.35	A
7	Blackhawk Road	Camino Tassajara	0.36	A	0.37	A
9	I-680 southbound off-ramp	Crow Canyon Road	0.65	B	0.57	A
10	I-680 northbound off-ramp	Crow Canyon Road	0.54	A	0.42	A
11	Alcosta Boulevard	Crow Canyon Road	0.46	A	0.61	B
12	Dougherty Road	Crow Canyon Road	0.20	A	0.23	A
13	I-680 southbound off-ramp	Bollinger Canyon Road	0.41	A	0.76	C
14	I-680 northbound off-ramp	Bollinger Canyon Road	0.77	C	0.62	B
15	Camino Ramon	Bollinger Canyon Road	0.49	A	0.42	A
16	Alcosta Boulevard	Bollinger Canyon Road	0.51	A	0.55	A
21	I-680 southbound off-ramp	Alcosta Boulevard	0.72	C	0.65	B
22	I-680 northbound off-ramp	Alcosta Boulevard	0.67	B	0.87	D
27	Dougherty Road	Dublin Boulevard	0.58	A	0.84	D
28	Dougherty Road	I-580 westbound off-ramp	0.56	A	0.68	B
29	Hopyard Road	I-580 eastbound off-ramp	0.67	B	0.66	B
30	Tassajara Road	I-580 westbound off-ramp	0.45	A	0.42	A
31	Santa Rita Road	I-580 eastbound off-ramp	0.59	A	0.61	B

Notes: LOS = Level of service.

V/C = Volume to capacity.

\* See Figure 6-1.

Study locations numbered 17-20, 25, and 26 will be built as part of the planned roadway improvements.

Study locations numbered 8, 23, and 24 are unsignalized (see Table 6-3).

Source: TJKM Transportation Consultants 1992.

Table 6-2. Existing Intersection Conditions at Unsignalized Locations

Intersection Number	North-to-South Street	East-to-West Street	Uncontrolled Movement	A.M. Peak Hour		P.M. Peak Hour	
				RC	LOS	RC	LOS
8	Camino Tassajara	Highland Road	Southbound left	960	A	812	A
			Westbound left	449	A	448	A
23	Alcosta Boulevard	Old Ranch Road	Three-way stop		A		B
24	Dougherty Road	Old Ranch Road	Northbound left	720	A	679	A
			Eastbound left	374	B	274	C

Notes: RC = Reserve capacity  
LOS = Level of service

Source: TJKM 1992.



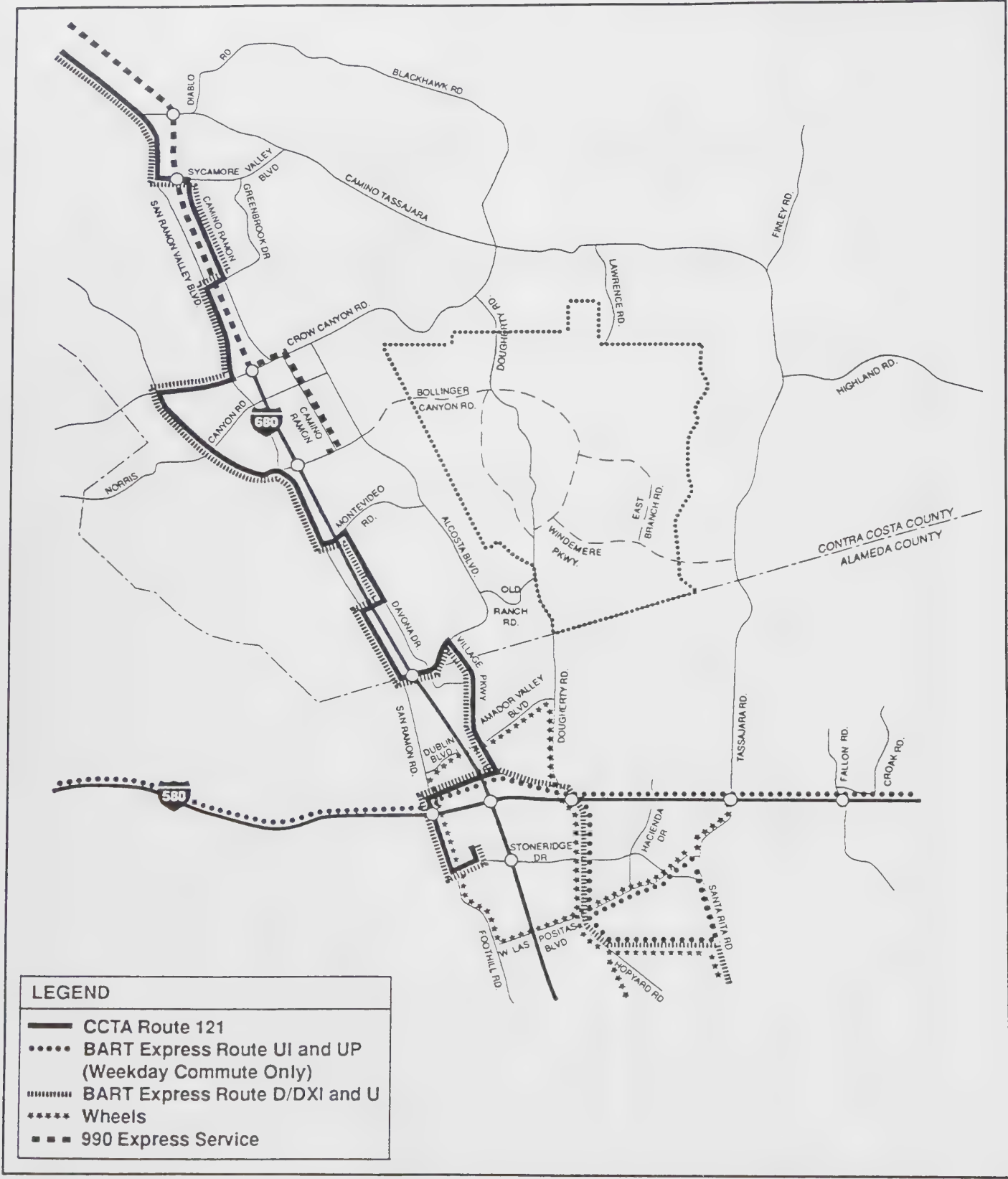


Figure 6-4. Existing Transit Service

Source: TJKM 1992

normal CCCTA service area. However, CCCTA has recently coordinated an extension of service on Route 121 south of the County line to Stoneridge Mall in Pleasanton. This service extension outside the CCCTA service area required specific approval of the CCCTA board. A similar coordination effort may allow for transit service extensions from Dougherty Valley south to future transit stations and employment sites.

#### **Livermore-Amador Valley Transit Authority**

The Livermore-Amador Valley Transit Authority provides local bus service (known as WHEELS) in Dublin, Pleasanton, and Livermore. Service is currently provided on Dougherty Road as far north as Amador Valley Boulevard. The County line divides the service areas for CCCTA and WHEELS. WHEELS provides local transit service to the Hacienda Business Park area in Pleasanton and would also provide local service to new stations on the BART extension to Dublin and Pleasanton.

#### **Bay Area Rapid Transit**

There are no BART stations in the Tri-Valley region. The nearest BART service is the Concord line, which includes stations in Walnut Creek and Lafayette. According to passenger surveys presented in BART stations access studies, Danville and San Ramon residents who use BART often drive to one of those stations and park their cars.

#### **Bay Area Rapid Transit Express Bus**

Express buses provide connections to BART stations. Express buses along the I-680 corridor provide service between the San Ramon and Danville areas and the Walnut Creek and Lafayette BART station. Express buses along the I-580 corridor provide service between Livermore, Dublin, and Pleasanton, and the Bayfair (San Leandro) and Hayward BART stations.

### **IMPACTS AND MITIGATION MEASURES ASSOCIATED WITH THE PROJECT**

The figures in this section contain data for the year 2000 because the TJKM Dougherty Valley Specific Plan Traffic Study analyzes traffic conditions in this year, as presented in Appendix D. The narrative presented below, however, evaluates traffic conditions in 2010 and beyond 2010 but does not address the year 2000.

## Methodology and Significance Criteria

### Methodology

**Land Use Scenarios.** Future-year transportation conditions were evaluated for four scenarios based on reasonably projected regional land development and planned highway and transit improvements. Land use projections for 2010 and buildout of the surrounding Tri-Valley region are based on current general plans and pending general plan amendments (Table 6-3). Highway and transit system improvements were compiled for 2010 (Figure 6-5). The four study scenarios analyzed by the traffic model are:

- Year 2010, No Project - Regional housing and employment levels by 2010 with no new development in the Dougherty Valley planning area. Several Tri-Valley jurisdictions are expected to be at or near their full buildout capacity by 2010.
- Year 2010, With Project - Same as above but with full Dougherty Valley planning area development, including 11,000 residential units, neighborhood commercial service, and K-12 school facilities.
- Cumulative, No Project - Full buildout of all city and county general plans and full realization of pending general plan amendments in the Tri-Valley region, including the Tassajara Valley, East Dublin, Pleasanton Ridge area, and North and South Livermore. Compared to 1990, the cumulative development scenario in the Tri-Valley region would add 70,000 new residents and 184,000 new employees.
- Cumulative, With Project - Same as above but with full Dougherty Valley planning area development, including 11,000 residential units, neighborhood commercial service, and K-12 school facilities.

**Traffic Model.** Traffic forecasts in this study were made using the Dougherty Valley Model (DVM). DVM, developed by TJKM, is a computerized representation of the street, highway, and transit systems within the Tri-Valley region and the nine Bay Area counties. DVM was adapted from previously validated models for this area to be compatible with the forthcoming Tri-Valley Model being developed by the CCTA. The DVM description and validation for 1990 conditions is presented in Appendix D-4.

**Trip Generation.** The trip generation for the Dougherty Valley planning area was projected based on rates calibrated in the DVM. The trip rates were derived from previous modeling studies, including the Contra Costa County traffic model for application in this study, and were used to revalidate for 1990 conditions.



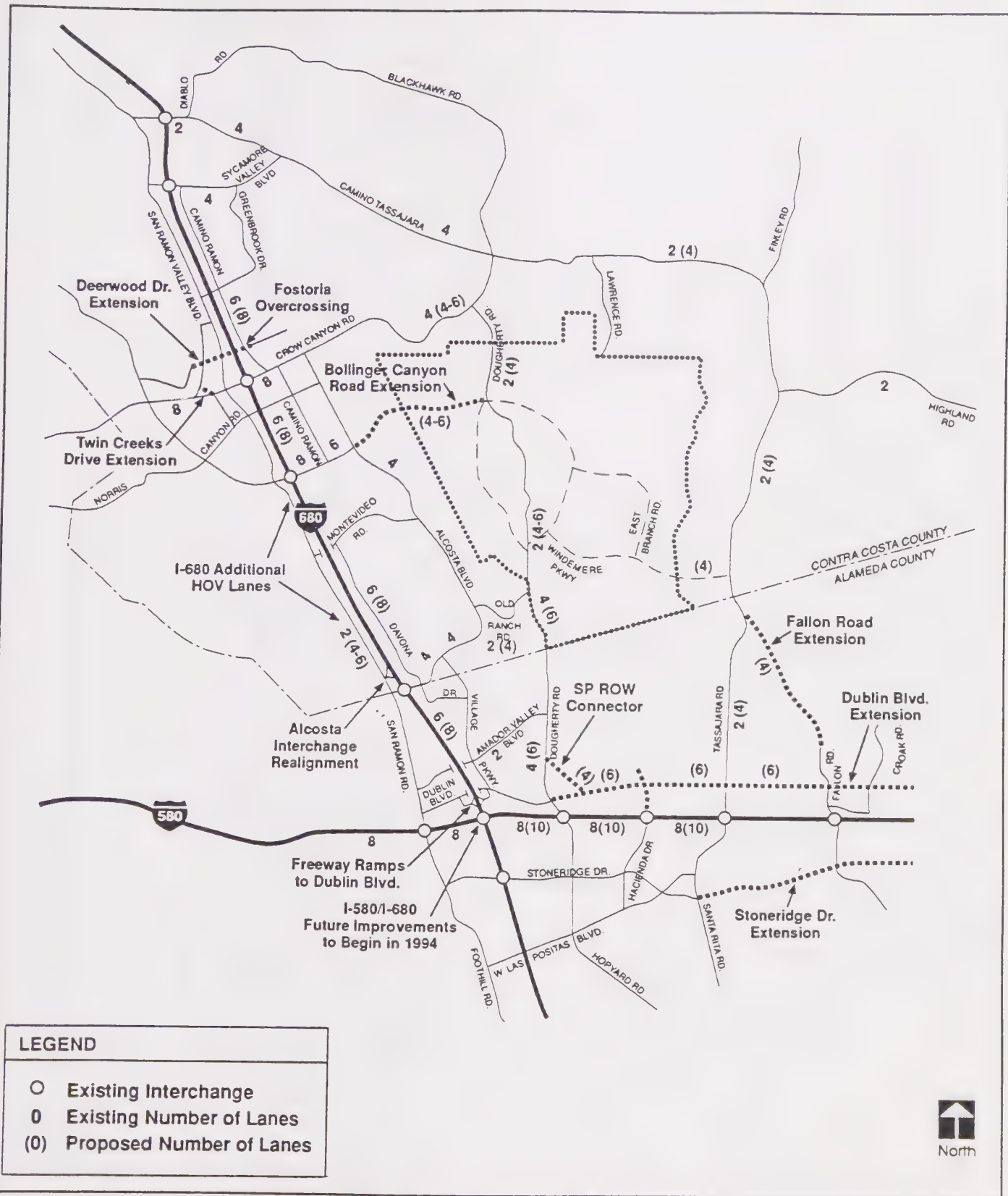


Figure 6-5. Planned Roadway Improvements

Source: TJKM 1992

Table 6-3. Land Use Growth Forecast for the Tri-Valley Region

Area	1990 Base Data		Year 2010 with Project (CCTA Draft Constrained Forecast)		Cumulative with Project (Total Buildout Capacity)	
	Number of Households	Number of Employees	Number of Households	Number of Employees	Number of Households	Number of Employees
Danville	10,999	6,005	13,223	7,705	13,223	7,705
San Ramon	13,171	27,679	15,880	44,180	15,880	45,310
Dougherty Valley	101	0	11,000	5,632	11,000	5,632
Alamo/Blackhawk	6,209	1,623	8,298	1,623	8,466	1,623
Tassajara Valley	69	12	2,507	12	4,344	12
Other Unincorporated Contra Costa County	308	99	308	99	308	99
Dublin	6,129	12,451	6,358	12,758	6,358	12,758
East Dublin	50	455	10,009	11,406	18,404	40,841
West Dublin	849	291	2,850	446	4,182	291
Pleasanton	19,724	28,363	28,342	55,261	28,552	64,568
Pleasanton Ridge	17	0	2,525	50	2,525	50
Livermore	20,633	30,504	26,147	54,840	25,881	101,545
South Livermore	163	3,833	2,148	4,780	2,630	5,970
North Livermore	<u>131</u>	<u>336</u>	<u>12,366</u>	<u>4,365</u>	<u>20,138</u>	<u>14,278</u>
Total Tri-Valley region	78,553	111,651	141,961	203,157	161,891	300,682

Sources: TJKM 1992.

Economic & Planning Systems, Inc., Preliminary Growth Forecast for the Year 2000 and 2010, Constrained to ABAG's Projections 90 Forecast for the Tri-Valley Jurisdiction, February 3, 1992.

Table 6-4. Dougherty Valley Trip Generation Summary

Land Use Category	Number of Dwelling Units	Number of Employees	Daily Trip Rate per Dwelling Unit or Employee	Daily Trips	A.M. Peak Hour		P.M. Peak Hour	
					Trip Rate per Dwelling Unit or Employee	Number of Trips	Trip Rate per Dwelling Unit or Employee	Number of Trips
Medium-income dwelling units	6,077	NA	11.61	70,554	.71	4,315	.78	4,740
High-income dwelling units	<u>4,923</u>	NA	15.51	<u>76,356</u>	.96	<u>4,726</u>	1.03	<u>5,071</u>
Subtotal	11,000			146,910		9,041		9,811
Retail employment	NA	894	17.36	15,520	1.16	1,037	1.32	1,180
Other employment	NA	<u>4,946</u>	1.29	<u>6,380</u>	.37	<u>1,830</u>	.37	<u>1,830</u>
Subtotal		5,840		21,900		2,867		3,010
Total	<u>16,840</u>			<u>168,810</u>		<u>11,908</u>		<u>12,821</u>

Note: NA = not applicable.

Assumes 11,000 total dwelling units.

Source: TJKM 1992.



The trip generation rates and trips are summarized in Table 6-4 for all land use categories according to the trip productions (Ps) and attractions (As) for each of the three trip purposes. The calculated trips ends are adjusted through the modeling process so that there is a balance in the total number of productions and attractions. The final effective trip rates may vary slightly from the values shown in the table.

**Trip Distribution.** Trip distribution was estimated using factors developed for the Tri-Valley region based on earlier travel surveys conducted by the MTC. The trip distribution process determines the interchange of trips between traffic analysis zones (TAZs) based on the travel time between them and a set of values referred to as friction factors. These friction factors were established to represent a typical traveler's preference for making work, shopping, and other trips close to their origin. Generally, as the travel time between TAZs increases, the preference for making trips declines. Because this is more true for shopping and school trips than for work trips, separate friction factor curves are established for each trip purpose.

The Dougherty Valley trip distribution calculated by a traffic gravity model for the Tri-Valley area is summarized in Table 6-5 for 2010. This trip distribution is inclusive of all types of trip purposes (work, shopping, and other). Half of the project trips are forecasted to start and end within the Dougherty Valley, Tassajara Valley or the City of San Ramon. These local trips will be made primarily on the arterial streets and will not significantly affect the regional highway system. Much smaller proportions are expected for travel between other areas within the Tri-Valley region. For example, trip interchanges between Dougherty Valley and Danville TAZs will be 5%, and 13% to and from Dublin by 2010. Although the trip distribution percentages to these Alameda County communities may appear to be low given their growing importance as employment centers, the distribution of other types of trips (such as local shopping trips) may influence the results of this analysis. A significant portion of the total trips are expected to be outside of the Tri-Valley region with 17% to other Bay Area counties besides Alameda and Contra Costa Counties (e.g., Santa Clara, San Francisco) and 3% will travel outside of the Bay Area to San Joaquin and Stanislaus Counties.

## Significance Criteria

- **Roadway Segments.** Daily roadway traffic volumes were compared to the design daily volume capacities listed in Table 6-6 for the types of roadways in the study area. The roads and highways found to be near or to exceed the planned capacity (design ADT) are considered to experience significant impacts.
- **Intersections.** The growth management element developed by the CCTA stipulates thresholds for the minimum desirable traffic service during peak hours for the majority of streets and roadways, referred to as Basic Routes. The intersection LOS standards are keyed to general plan land use areas as listed in

Table 6-5. Project Trip Distribution from the Dougherty Valley  
Planning Area to Other Locations, 2010

Destination of Trip	Percentage of All Trips
Dougherty/Tassajara Valleys	30
San Ramon	20
Danville	5
Livermore	3
Pleasanton	8
Dublin	13
Other Alameda County	1
Other Bay Area	17
Outside Bay Area	<u>3</u>
Total	100

Note: Includes all types of trips (work, shopping, other). Trip distribution for other forecast years varies slightly from 2010 figures.

Source: TJKM 1992.

Table 6-6. Typical Roadway Capacities

Roadway Type (Tri-Valley Example Roadways)	Maximum ADT	Design ADT	Tri-Valley Example Segment Existing ADT*
10-lane freeway	250,000	200,000	--
Eight-lane freeway (I-580 from I-680 to Santa Rita Road)	200,000	160,000	145,000
Six-lane freeway (I-680)	150,000	120,000	109,000
Eight-lane divided arterial (Crow Canyon Road east of I-680)	75,000	60,000	38,230
Six-lane divided arterial (Hopyard Road)	60,000	48,000	30,900
Six-lane divided arterial (including parking)	45,000	36,000	--
Four-lane divided arterial (Sycamore Valley Boulevard)	45,000	36,000	18,640
Four-lane divided arterial (including parking)	35,000	28,000	--
Four-lane undivided arterial (Alcosta Boulevard)	45,000	36,000	17,600
Two-lane collector road	20,000	16,000	--

ADT = average daily traffic volumes.

Notes: Traffic capacities are based on the Highway Capacity Manual, Transportation Research Board, Special Report 209. Calculations assume a 60% main street green, 10% trucks, 20% combined left and right turns, a 66% directional split, and 10% peak-hour volumes of ADT. Design ADT = 80% of maximum ADT.

\* = Example segment ADTs from Figure 6-2 and 6-3.

Source: TJKM Transportation Consultants 1992.



Table 6-7. The types of existing or planned development within the study area fall into the urban land use category.

The growth management element allows jurisdictions to develop more restrictive LOS performance standards for inclusion in their general plans.

The significance criteria used in this study for assessing traffic impacts is a minimum peak-hour condition of LOS D with a V/C ratio less than or equal to 0.89. This is at the upper end of the range for urban areas according to the CCTA scale.

- **Routes of Regional Significance.** Another category of transportation facility as defined in the CCTA's growth management element is the Route of Regional Significance, which primarily serves regional transportation demands as opposed to the local or community needs provided for by the Basic Routes. Within the study area, the Routes of Regional Significance that have been adopted by the County on a preliminary basis are I-680 and Camino Tassajara. Because I-580 is not in Contra Costa County, it is not a Route of Regional Significance, but comes under the Alameda County Congestion Management Authority Plan. According to the Alameda County Congestion Management Program, the performance standard for this portion of I-580 is LOS E.

Mitigation of impacts, when necessary, on Routes of Regional Significance will be accomplished by requiring developers contributing to those impacts to participate in a regional transportation mitigation program created pursuant to Measure C (1988) (see mitigation measure 6.3). In this case, such impacts would not be required to be mitigated under LOS standards. A transportation plan is being developed jointly by the CCTA and the Tri-Valley Transportation Council that will identify the standards and means to measure travel performance for the Routes of Regional Significance in Contra Costa County and the Tri-Valley area as a whole.

Although freeway offramps are analyzed below for environmental review purposes, as to their compliance with LOS standards, offramps may be considered regional routes (instead of "basic routes") under Measure C (1988). If so, impacts on freeway offramps would be mitigated as for any Route of Regional Significance (i.e., under mitigation measure 6.3). Also, some other roads analyzed below under LOS standards are, or may eventually be, designated as Routes of Regional Significance and thus may be mitigated as such instead of as "basic routes".

**CMP Network.** State law requires the Congestion Management Agencies (CMAs), for Contra Costa and Alameda Counties to adopt a Congestion Management Program (CMP) Network along with corresponding LOS standards for these facilities. I-580 and I-

Table 6-7. Contra Costa Transportation Authority  
Intersection LOS Standards

Land Use Area	Minimum Peak-Hour Standard	
	Volume-to-Capacity Ratio	Level of Service
Rural	0.70 - 0.74	Low C
Semi-Rural	0.75 - 0.79	High C
Suburban	0.80 - 0.84	Low D
Urban	0.85 - 0.89	High D
Central Business District	0.90 - 0.94	Low E

Source: Contra Costa Transportation Authority, Growth Management Element 1991.

680 are included in the CMP Networks for Alameda and Contra Costa Counties. The LOS standard for I-580 is LOS E. The performance standard for I-680 in Contra Costa is LOS E for the southbound lanes south of Bollinger Canyon and LOS E for the northbound lanes south of Diablo Road. All other I-680 freeway segments in the study area have an LOS F performance standard. According to State law, a failure to satisfy applicable LOS standards requires the adoption of a Deficiency Plan to address the failure. Failure to prepare and adopt a Deficiency Plan would cause local jurisdictions affected by the LOS violation to lose a portion of their state gas tax subventions (Goetz pers. comm.).

## **Key Assumptions**

### **Land Use Assumptions for the No-Project Scenarios**

Future-year land use projections published by ABAG were refined by Economic and Planning Systems (EPS) for the Tri-Valley region. These refined projections are being prepared for the CCTA to serve as the central information source for land development planning in the Tri-Valley region. The latest available information from the process was used in making the traffic model projections for this study (Table 6-3).

The base land use data was disaggregated by EPS to establish a more detailed description of land development (individual project areas, traffic analysis zones) than was available from ABAG forecasts, which are typically done according to census tract boundaries. This process retained the same areawide totals for households and employees as was shown in Projections 90 (Association of Bay Area Governments 1990) for 1990 and 2010. Land use projections were provided by EPS for the traffic analysis zonal system used in making the traffic forecasts.

The Tri-Valley land use projection totals for households and employees is summarized in Table 6-3 for 1990, 2010, and cumulative conditions. Additional development plans beyond the ABAG thresholds are shown in the final column (cumulative), which includes the total developable area for either planned or proposed projects in the Tri-Valley region. The quantities shown for the Dougherty Valley planning area were modified to reflect the proposed project. (The original EPS forecast for Dougherty Valley was 1,561 households and 0 employees in 2000, 6,426 households and 1,000 employees in 2010, and 9,601 households and 1,500 employees in the cumulative condition.) The numbers for the Town of Danville and the Cities of San Ramon, Dublin, Pleasanton, and Livermore include the lands currently within the respective city limits. Specific planning areas that are currently under consideration for general plan amendments outside these cities are also identified in this table, including Tassajara Valley, East Dublin, West Dublin, Pleasanton Ridge, South Livermore, and North Livermore.



Several key growth trends can be seen in Table 6-3, which will have a substantial effect on the traffic volume forecasts. Between 1990 and 2010, the total number of households and employees is expected to increase by roughly 75%. The current balance of jobs and housing will essentially remain constant over this period according to this forecast. However, between 2010 and buildout of the planned land capacity, a dramatic increase in employment would occur (48%), while the growth in housing stock will only increase by 14%. If this level of employment in the Tri-Valley region is realized in the Cumulative case, the jobs/housing ratio imbalance will probably increase the proportion of travel outside of the Tri-Valley region significantly when compared to 2000 or 2010 because workers will not be able to find sufficient local housing. It should be noted that the majority of this employment growth between 2010 and Cumulative is located within the East Dublin and Livermore areas.

### **Land Use Assumptions for the With-Project Scenarios**

The land use assumptions for the proposed project analyzed for this traffic analysis differ slightly with those presented in Chapter 3, "Project Description". The differences in land use assumptions are associated with a minor shift in residential unit distribution within the planning area and are not expected to change the conclusions of this chapter.

### **Planned Roadway Improvements**

Improvements have been proposed for freeways, freeways interchanges, and local roads in the Dougherty Valley traffic study area (Figure 6-5). The most important of these for the Dougherty Valley planning area are the Bollinger Canyon Road extension, the proposed widening of I-680, and planned improvements to the I-580/I-680 interchange. A comprehensive list of planned roadway and transit system improvements compiled for 2010 are shown in Appendix D-5; these were included in the traffic model forecasts. The key road improvements are briefly described below.

Many of these improvements are not fully funded or included in adopted General Plans. It will be important to assess the fair-share portion of these roadway widening improvements for the Dougherty Valley project proponents in the context of other planned growth in this area. (Goetz pers. comm.).

**Bollinger Canyon Road.** The San Ramon General Plan indicates that Bollinger Canyon Road should be extended as a four-lane road between Alcosta Boulevard and Dougherty Road, reserving ROW for six lanes. There are significant obstacles to providing a full six-lane section east of Alcosta Boulevard (without considering transit in the median), including existing buildings and structures. Most of the Bollinger Canyon Road extension lies within the Dougherty Valley project boundary and will be funded in phases by project development.

**Dougherty Road.** The Contra Costa County General Plan circulation element provides for upgrading Dougherty Road to expressway status from just south of Crow Canyon Road to the County line, as indicated in Figure 5-2 of the general plan. The DVSP provides for arterial status. The general plan amendment associated with the project would amend Figure 5-2 of the general plan to substitute an arterial designation for the expressway designation. The Dublin General Plan circulation element provides for future widening to six lanes between Dublin Boulevard and the Contra Costa County line.

**Dublin Boulevard.** The East Dublin Specific Plan and the City of Dublin General Plan circulation element provides for the easterly extension of Dublin Boulevard as a six-lane arterial between Dougherty Road and Airway Boulevard.

**Tassajara Road.** The current plan according to the East Dublin Specific Plan is to provide improvements to Tassajara Road as a four-lane arterial between Dublin Boulevard and Fallon Road.

**Interstate 580.** I-580 provides four lanes in each direction through the Tri-Valley region. Recent improvement projects constructed an additional auxiliary lane in each direction between I-680 and Tassajara Road. Although Caltrans' Route Concept Report for I-580 indicates a demand to expand the freeway to 10 lanes in the future, no programmed funding exists for this additional widening. There are no current plans to widen the freeway east of Tassajara Road. If BART is extended to Livermore, it will require ROW occupied by the current median plus the two inside lanes. In that case, the freeway will require widening to the outside to maintain the current eight lanes. The provision of 10 lanes will require further widening to the outside.

**Interstate 680.** An improvement project has been planned for I-680 that will add one high-occupancy-vehicle (HOV) lane in each direction in the median to provide four total lanes in each direction between State Route 24 and I-580. The first phase of the project, which was recently completed, involves the placement of sound walls along the freeway. The second phase of the project, which will add the lanes in the median of the freeway, could be completed by 1993.

Additional freeway ramps are planned for I-680 immediately north of I-580 for service into downtown Dublin. These hook ramps will be completed in connection with the construction of the West Dublin BART station to provide more direct access to the station and to relieve current traffic congestion at the gateway intersections into Dublin at Dublin Boulevard/San Ramon Road and Dublin Boulevard/Dougherty Road. The proximity of these new ramps to the I-580/I-680 interchange is too close to permit connecting access to I-580.

**I-580/I-680 Interchange.** The I-580/I-680 interchange project includes construction of a flyover ramp from south I-680 to eastbound I-580. The improvement will help to reduce congestion on one of the key bottlenecks in the Tri-Valley region. Construction is



expected to begin in 1994, with work completed in 1996. Funding for this improvement will come from Alameda County's Measure B sales tax initiative.

The ultimate improvements include full freeway flyovers in all directions replacing the current loop ramps. This improvement phase depends on future funding approvals. As part of the current proposal, local access will be reduced at the local interchanges adjacent to the freeway-to-freeway interchange. For example, drivers on Dougherty Road will have direct access to I-580 but will no longer be able to use I-580 to reach I-680. These local access changes could cause significant shifts in freeway access patterns and will affect the preferred routes for travel to and from Dougherty Valley.

### **Planned Transit Service**

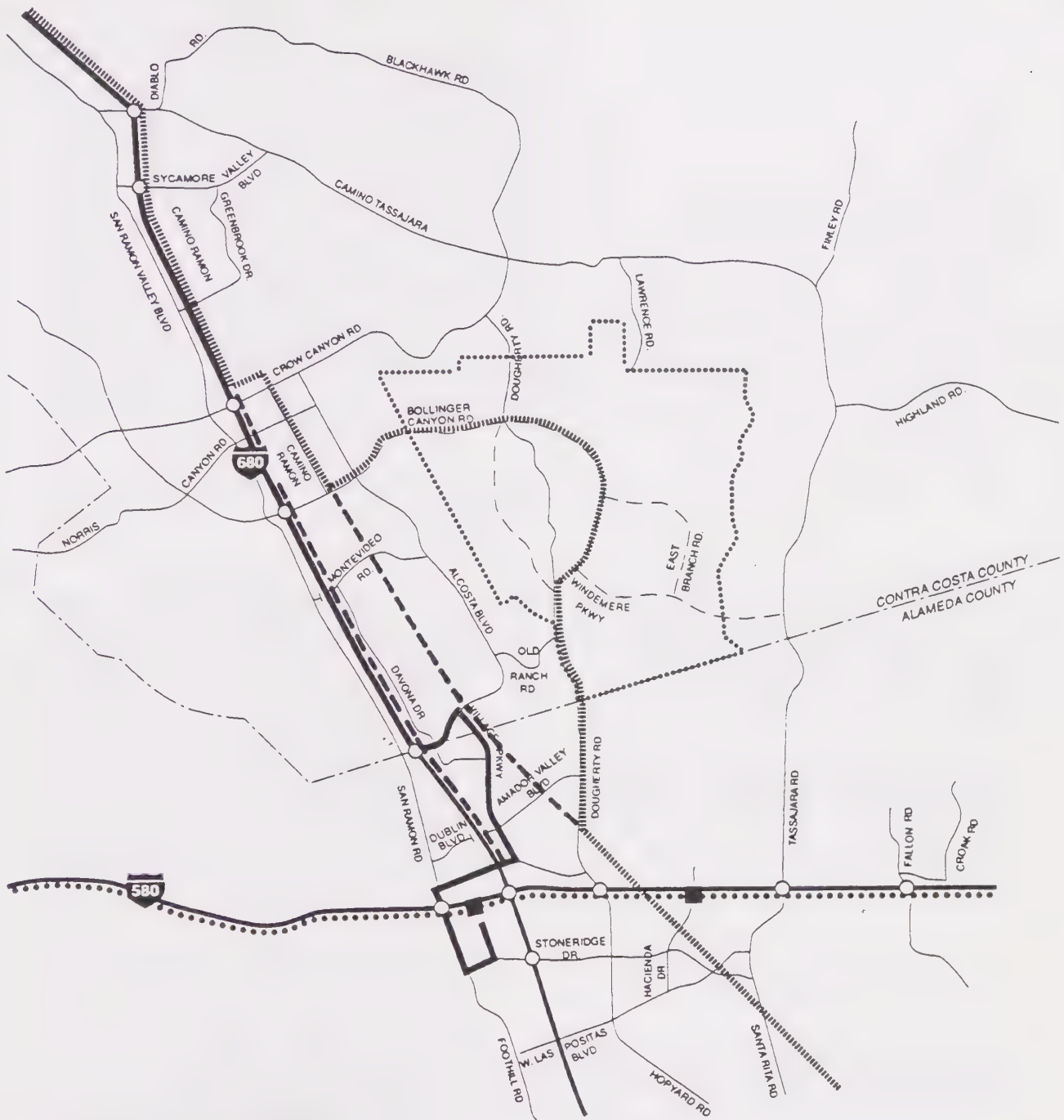
The most significant enhancement to transit service in the Tri-Valley region will be the extension of BART service to stations in Dublin and Pleasanton (Figure 6-6). Several studies have also investigated the potential for rail transit service on other corridors in the area.

**BART Dublin/Pleasanton Extension.** The BART board has adopted a policy for the proposed extension of BART to Dublin and Pleasanton. Current BART policy will build a BART extension to three new stations, one in Castro Valley, a West Dublin/Pleasanton station in the median of I-580 between Foothill Boulevard and I-680, and an East Dublin/Pleasanton station in the I-580 median between Dougherty Road and the proposed Hacienda interchange. Two of the stations, the Castro Valley station and the East Dublin/Pleasanton station, will be constructed using BART or other public and private financing. The third station on the extension (the West Dublin/Pleasanton station) can be constructed only on the commitment of funding that is unrelated to the funding levels in the Metropolitan Transportation Commission (MTC) New Rail Starts and Extension Program.

**Rail Transit.** Several studies have evaluated the feasibility of rail transit in the Tri-Valley region. The San Ramon Branchline Study (TJKM Transportation Consultants 1985) explored alternatives for a busway or light rail transit line along the I-680 corridor. The alternative alignments will use either the freeway corridor or the abandoned Southern Pacific railroad ROW, about one-half mile east of the freeway.

Contra Costa County has acquired ownership rights to the Southern Pacific ROW north of the Alameda County line. The Danville General Plan states that the I-680 corridor should be considered the appropriate location for major transit facilities. It also states that residential property shall be given prime consideration when determining ROW use. The San Ramon General Plan states a policy to locate future transit uses, such as light rail or BART, in the I-680 ROW. San Ramon has designated the Southern Pacific ROW as a route for a Class I bicycle path. A possible alignment for light rail that serves Dougherty Valley and transitions to Dublin's preferred route is shown in Figure 6-6.





#### LEGEND

- Proposed BART Station
- ..... Proposed BART Extension
- ||||| DVSP Anticipated Light Rail Alignment
- DXI BART Express Proposed Route
- - - Other Potential Light Rail Alignments



Figure 6-6. Planned Transit Improvements

Source: TJKM 1992

Alameda County completed their own study of light rail transit, which identified various corridors that will have the potential for light rail transit service. Potential rail corridors that were evaluated include the Southern Pacific ROW between San Ramon and Pleasanton, the proposed Dublin Boulevard extension, Stanley Boulevard between Pleasanton and Livermore, and Niles Canyon between Pleasanton and Fremont. Alameda County has acquired the portion of the Southern Pacific ROW south of the county line for potential transportation use.

The County's recently completed Contra Costa Rail Opportunities Study gave high priority to the I-680 corridor for rail transit service if it connected with Alameda and Solano Counties. The County has proposed a joint effort with representatives from Alameda and Solano Counties and the Contra Costa Transportation Authority to evaluate the rail transit needs of the three counties, and resolve the rail transit alignment issue along the I-680 corridor (Goetz pers. comm.).

### **Mitigation Measures**

This circulation section identifies three types of mitigation measures: no-project mitigation measures, project mitigation measures, and regional mitigation measures. In all cases, the project proponents should be responsible for a pro rata fair share of mitigation measures that benefit the project.

No-project mitigation measures are measures needed to mitigate the impacts of background traffic (increases in traffic that would occur even without the project). Some of these mitigation measures are not fully funded or included in adopted General Plans and would benefit the Project. It will be important to assess the fair-share portion of these mitigation measures for the project proponents in the context of other planned growth in this area.

Project mitigation measures are measures needed to mitigate the impacts of the project. These impacts would not be needed under no-project conditions.

Regional mitigation measures are measures that would require a cooperative countywide effort, such as freeway widening. Efforts are currently underway to determine the extent of Tri-Valley regional transportation planning and mitigation needs. The Tri-Valley Transportation Council is coordinating preparation of a regional model to provide a basis for determination of a project's fair share of these needed improvements (Goetz pers comm). The County will require the developer to participate in a regional transportation mitigation program as determined through Measure C (1988). The amount of any regional transportation fee or assessment will be calculated by using the rate in effect at the time of issuance of a building permit or certificate of occupancy for this project or as otherwise determined by the agency with legal authority to set such fees (Goetz pers. comm.).

## **Project-Related Impacts**

### **Daily Traffic Roadway Segment Analysis**

Figure 6-7 presents ADT for the four land use study scenarios. The following analysis evaluates whether the planned street and freeway improvements described above are adequate to serve forecasted levels of growth when comparing no-project to with-project conditions. Roadways expected to experience forecasted volumes exceeding the design ADTs presented in Table 6-6 are judged to have significant project impacts. Roadways not expected to exceed planned capacities (i.e., those with less-than-significant impacts) are not listed below. For the roadways that were analyzed, peak-hour volumes were compared to ADT volumes. It was found that the peak-hour volumes are approximately 9% of ADT.

#### **Impact: Exceedance of Crow Canyon Road Planned Capacity under 2010 With-Project Conditions**

The forecasted volume of 42,000 vehicles on the segment between Dougherty Road and Camino Tassajara would exceed the current planned four-lane arterial capacity of 36,000 vehicles by 2010 with Dougherty Valley completed as planned. One approach to addressing this impact is the development of a second roadway connection between Dougherty Road and Camino Tassajara. Such a connection would be in addition to the planned Windemere Parkway extension. This second connection would involve improvement of Lawrence Road or development of a new route. This concept is discussed in Appendix D. It is not part of the proposed project and may be deemed infeasible for socioeconomic and environmental reasons that override its possible benefits to area circulation.

This impact is considered significant because the expected volume would exceed capacity.

#### **Mitigation Measure**

- 6.1: The project proponents should construct or contribute a pro rata share toward improving Crow Canyon Road from a four-lane to a six-lane arterial between Dougherty Road and Camino Tassajara.

Implementing mitigation measure 6-1 would reduce this impact to a less-than-significant level because the expected volume would be below capacity.





### **Impact: Exceedance of Tassajara Road Planned Capacity under 2010 No-Project and 2010 With-Project Conditions**

The planned four-lane arterial section between Dublin Boulevard and Fallon Road would be unable to adequately serve the forecasted volumes by 2010. The with-project volume would be 44,900 vehicles, compared to the no-project volume of 43,800 vehicles. This capacity of the roadway would be 36,000 vehicles.

This impact is considered significant because the expected volume would exceed capacity.

#### **Mitigation Measure**

- 6.2: The project proponents should construct or contribute a pro rata share toward improving Tassajara Road from a two-lane to a four-lane arterial between Dublin Boulevard and Fallon Road.

Implementing mitigation measure 6-2 would reduce this impact to a less-than-significant level because the expected volume would be below capacity.

#### **Peak-Hour Freeway Mainline Analysis**

The peak-hour traffic volume projections for the I-580 and I-680 freeway segments within the study area were found to contrast significantly with the daily volume forecasts in the previous section. Although all sections of the freeway were found to operate satisfactorily under daily volumes, many were found to operate under heavy congestion and delays (LOS E or F) during both the a.m. and p.m. peak hours. The apparent difference is in the disparity in actual peak travel patterns forecasted by the traffic model versus the generalized peaking and directional factors assumed in the daily volume analysis.

The results of the peak-hour freeway mainline performance evaluations are shown for 2010 (Tables 6-8 and 6-9) and cumulative conditions (Tables 6-10 and 6-11). The forecasted mainline volumes are compared to the directional hourly capacity for each freeway segment, and a peak-hour level of service was determined for each case. As the freeway directional traffic flows approach the hourly capacity at one segment, there can be upstream queuing impacts on the freeway segments not reflected in this analysis. Freeway mainline segments expected to reach the LOS E or F condition during peak hours are considered to experience significant impacts; these segments are discussed below. Segments expected to experience less-than-significant impacts (LOS D or better) are not listed below.

As mentioned above, the I-680 freeway is designated as a Route of Regional Significance according to the Contra Costa County growth management plan, and by definition does not have an applicable minimum performance threshold. The preferred

Table 6-8. Freeway Mainline Performance at 2010 A.M. Peak Hour

			No-Project Conditions						With-Project Conditions					
			Volume (No. of Cars)		V/C Ratio		LOS		Volume (No. of Cars)		V/C Ratio		LOS	
	Number of Lanes	Hourly Capacity	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
<b>I-680 Segment South of:</b>														
Diablo Road	5	7,000	5,623	5,544	0.80	0.79	D	D	6,336	5,746	0.91	0.82	D	D
Sycamore Valley Road	5	7,000	4,611	5,526	0.66	0.79	C	D	5,104	5,650	0.73	0.81	C	D
Crow Canyon Road	5	7,000	5,456	4,013	0.78	0.57	D	C	5,914	4,382	0.84	0.63	D	C
Bollinger Canyon Road	4	6,000	8,483	3,810	1.41	0.64	F	C	8,606	4,198	1.43	0.70	F	C
Alcosta Boulevard	4	6,000	7,779	4,171	1.30	0.70	F	C	7,858	4,567	1.31	0.76	F	C
<hr/>														
			EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
<b>I-580 Segment East of:</b>														
I-680	5	9,000	3,615	11,170	0.40	1.24	B	F	3,470	11,600	0.39	1.29	B	F
Dougherty Road	5	9,000	4,160	10,720	0.46	1.19	B	F	4,000	10,380	0.44	1.15	B	F
Hacienda Drive	5	9,000	3,620	12,000	0.40	1.33	B	F	3,480	11,900	0.39	1.32	B	F

Notes: V/C = volume to capacity.

LOS = level of service.

NB = northbound.

SB = southbound.

EB = eastbound.

WB = westbound.

(See Table XI in Appendix D for additional notes.)

Source: TJKM Transportation Consultants 1992.



Table 6-9. Freeway Mainline Performance at 2010 P.M. Peak Hour

			No-Project Conditions						With Project Conditions					
			Volume (No. of Cars)		V/C Ratio		LOS		Volume (No. of Cars)		V/C Ratio		LOS	
	Number of Lanes	Hourly Capacity	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
<b>I-680 Segment South of:</b>														
Diablo Road	5	7,000	5,738	5,658	0.82	0.81	D	D	6,274	6,406	0.90	0.92	D	D
Sycamore Valley Road	5	7,000	5,491	5,386	0.78	0.77	D	C	5,843	5,861	0.83	0.84	D	D
Crow Canyon Road	5	7,000	4,770	5,236	0.68	0.75	C	C	5,262	5,597	0.75	0.80	C	D
Bollinger Canyon Road	4	6,000	4,506	7,797	0.75	1.30	C	F	4,928	7,955	0.82	1.33	D	F
Alcosta Boulevard	4	6,000	4,946	7,348	0.82	1.22	D	F	4,506	7,436	0.75	1.24	C	F
<hr/>														
	Number of Lanes	Hourly Capacity	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
<b>I-580 Segment East of:</b>														
I-680	5	9,000	6,830	6,070	0.76	0.67	C	C	7,040	6,180	0.78	0.69	D	C
Dougherty Road	5	9,000	10,930	4,630	1.21	0.51	F	B	11,680	4,460	1.30	0.50	F	B
Hacienda Drive	5	9,000	11,690	5,010	1.30	0.56	F	C	11,460	4,930	1.27	0.55	F	C

Notes: V/C = volume to capacity.  
 LOS = level of service.  
 NB = northbound.  
 SB = southbound.  
 EB = eastbound.  
 WB = westbound.

(See Table XI in Appendix D for additional notes.)

Source: TJKM Transportation Consultants 1992.

Table 6-10. Freeway Mainline Performance at Cumulative A.M. Peak Hour

			No-Project Conditions						With-Project Conditions					
			Volume (No. of Cars)		V/C Ratio		LOS		Volume (No. of Cars)		V/C Ratio		LOS	
	Number of Lanes	Hourly Capacity	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
<b>I-680 Segment South of:</b>														
Diablo Road	5	7,000	4,638	6,662	0.66	0.95	C	E	5,104	7,128	0.73	1.02	C	F
Sycamore Valley Road	5	7,000	3,678	6,653	0.53	0.95	B	E	3,907	7,031	0.56	1.00	C	F
Crow Canyon Road	5	7,000	4,576	5,078	0.65	0.73	C	C	4,497	5,641	0.64	0.81	C	D
Bollinger Canyon Road	4	6,000	7,665	4,840	1.28	0.81	F	D	7,348	5,509	1.22	0.92	F	D
Alcosta Boulevard	4	6,000	7,110	5,262	1.19	0.88	F	D	6,855	6,019	1.14	1.00	F	F
<hr/>														
	Number of Lanes	Hourly Capacity	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
<b>I-580 Segment South of:</b>														
I-680	5	9,000	5,280	8,560	0.59	0.95	C	E	5,220	8,450	0.58	0.94	C	E
Dougherty Road	5	9,000	6,490	8,310	0.72	0.92	C	D	6,780	7,660	0.75	0.85	C	D
Hacienda Drive	5	9,000	4,790	10,420	0.53	1.16	B	F	5,180	9,940	0.58	1.10	C	F

Notes: V/C = volume to capacity.

LOS = level of service.

NB = northbound.

SB = southbound.

EB = eastbound.

WB = westbound.

(See Table XIII in Appendix D for additional notes.)

Source: TJKM Transportation Consultants 1992.

Table 6-11. Freeway Mainline Performance at Cumulative P.M. Peak Hour

			No-Project Conditions						With-Project Conditions					
			Volume (No. of Cars)		V/C Ratio		LOS		Volume (No. of Cars)		V/C Ratio		LOS	
	Number of Lanes	Hourly Capacity	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
<b>I-680 Segment South of:</b>														
Diablo Road	5	7,000	6,776	4,849	0.97	0.69	E	C	7,445	5,465	1.06	0.78	F	D
Sycamore Valley Road	5	7,000	6,556	4,664	0.94	0.67	E	C	7,093	4,972	1.01	0.71	F	C
Crow Canyon Road	5	7,000	5,755	4,629	0.82	0.66	D	C	6,494	4,884	0.93	0.70	D	C
Bollinger Canyon Road	4	6,000	5,430	7,251	0.90	1.21	D	F	6,072	7,269	1.01	1.21	F	F
Alcosta Boulevard	4	6,000	6,019	6,723	1.00	1.12	F	F	6,697	6,758	1.12	1.13	F	F
-----														
	Number of Lanes	Hourly Capacity	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
<b>I-580 Segment East of:</b>														
I-680	5	9,000	5,410	8,670	0.60	0.96	C	E	5,260	8,910	0.58	0.99	C	E
Dougherty Road	5	9,000	8,660	6,380	0.96	0.71	E	C	8,060	6,430	0.90	0.71	D	C
Hacienda Drive	5	9,000	10,110	6,072	1.12	0.67	F	C	9,470	6,220	1.05	0.69	F	C

Notes: V/C = volume to capacity.  
 LOS = level of service.  
 NB = northbound.  
 SB = southbound.  
 EB = eastbound.  
 WB = westbound.

(See Table XIII in Appendix D for additional notes.)

Source: TJKM Transportation Consultants 1992.



minimum condition is expected to be determined as part of the forthcoming Tri-Valley Transportation Council Action Plan. In addition, the CCTA is currently evaluating future-year conditions on the I-680 corridor that may supplement this analysis. The preferred minimum standard for I-580 is LOS E according to the Alameda County CMP. An LOS E or LOS F condition as determined by this analysis indicates very heavy delays and low travel speeds (i.e., below 30 mph).

**Impact: LOS F Expected on I-680 between Bollinger Canyon Road and I-580 under 2010 No-Project Conditions**

During the a.m. (northbound) and p.m. (southbound) peak hours, I-680 is expected to experience LOS F under 2010 no-project conditions.

This impact is considered significant because the freeway would operate at LOS F.

**Mitigation Measure**

No direct mitigation is feasible. However, the following mitigation measures would substantially reduce this impact, but not to a less-than-significant level. Future-year freeway operations studies indicate excessive travel demands during peak hours on both I-580 and I-680. A multijurisdictional approach to these transportation problems would include the following measures.

- 6.3: The County, in cooperation with neighboring jurisdictions and the CMAs of Alameda and Contra Costa Counties, should initiate development of Deficiency Plans for I-680 and I-580 pursuant to State law which would consider the following actions:
  - 6.3a Implementation of enhanced transit service in the Tri-Valley region. Key elements to the regional transit effort include provision for a rail transit system along the I-680 and I-580 corridors with connections at the Pleasant Hill and future East Dublin BART stations, feeder bus service to key rail junctions, and integration of expanded local bus service across jurisdictional boundaries.
  - 6.3b Implementation of alternative transportation corridors that will relieve excessive future travel demands on I-580 and I-680. Current alternatives include upgrading of Route 84 through Livermore to freeway standards and extending this freeway north of I-580 to the Route 4 freeway through Brentwood, as well as improved access to the south.

- 6.3c Adopt plans to enhance the capacity of freeway corridors. Possible TSM measures include ramp metering, high-occupancy vehicle lanes, and an integrated Traffic Operations System (TOS) currently considered by Caltrans.
- 6.3d Adoption of regional land use plans that address the jobs/housing imbalance of existing General Plans and that seek to lessen the demand for automobile travel into, out of, and through the Tri-Valley transportation system.
- 6.3e The County shall require the developer to participate in a regional transportation mitigation program as determined through Measure C (1988). The amount of any regional transportation fee or assessment shall be calculated by using the rate in effect at the time of issuance of a building permit or certificate of occupancy for this project, or as otherwise determined by the agency with legal authority to set such fees.

To help fund these mitigation measures, the County would require the developers of projects contributing to the traffic problems to participate in a regional transportation mitigation program, including the payment of mitigation fees, based on information to be developed by the Tri-Valley Transportation Council's areawide transportation study currently underway.

**Impact: LOS F Expected on I-580 between I-680 and Fallon Road under 2010 No-Project Conditions**

During the a.m. peak hour (westbound) and a.m. peak hour (eastbound), I-580 from I-680 to Fallon Road is expected to experience LOS F under 2010 no-project conditions, with the exception of the eastbound I-580 segment between I-680 and Dougherty Road, which will operate satisfactorily.

This impact is considered significant because the freeway would operate at LOS F.

**Mitigation Measure**

- 6.3: This measure is described above.

Implementing mitigation measure 6.3 would substantially reduce the impact, but not to a less-than-significant level because the freeway would still operate at LOS F.

**Impact: LOS F Expected on I-680 between Bollinger Canyon Road and I-580 under 2010 With-Project Conditions**

During the a.m. (northbound) and p.m. (southbound) peak hours, I-680 is expected to experience LOS F under 2010 with-project conditions. The project is expected to increase the northbound a.m. peak-hour V/C ratios from 1.41 to 1.43 and from 1.30 to 1.31 along I-680 from Bollinger Canyon Road to I-580. The project is expected to increase the southbound p.m. peak-hour V/C ratios from 1.30 to 1.33 and from 1.22 to 1.24 along I-680 from Bollinger Canyon Road to I-580.

This impact is considered significant because the freeway would operate at LOS F. However, the project results in only a slight degradation of V/C ratio.

**Mitigation Measure**

- 6.3: This measure is described above.

Implementing mitigation measure 6.3 would substantially reduce the impact, but not to a less-than-significant level because the freeway would still operate at LOS F.

**Impact: LOS F Expected on I-580 between I-680 and Fallon Road under 2010 With-Project Conditions**

During the a.m. peak hour, westbound I-580 from I-680 to Dougherty Road, and during the a.m. (westbound) and p.m. (eastbound) peak hours, from Dougherty Road to Fallon Road, I-580 is expected to experience LOS F under 2010 with-project conditions.

The project is expected to increase V/C ratios westbound (a.m.) from I-680 to Dougherty Road from 1.24 to 1.29, and eastbound (p.m.) from Dougherty Road to Hacienda Drive from 1.21 to 1.30. The project is expected to decrease V/C ratios westbound (a.m.) from Dougherty Road to Fallon Road from 1.19 to 1.15 and from 1.33 to 1.32, and eastbound (p.m.) from Hacienda Drive to Fallon Road from 1.30 to 1.27.

This impact is considered significant because the freeway would operate at LOS F. However, the project improves conditions on some segments and results in only a slight degradation on other segments.



### **Mitigation Measure**

- 6.3: This measure is described above.

Implementing mitigation measure 6.3 would substantially reduce the impact, but not to a less-than-significant level because the freeway would still operate at LOS F.

### **Cumulative Impacts**

#### **Impact: LOS F Expected on I-680 between Bollinger Canyon Road and I-580 under Cumulative No-Project Conditions**

During the a.m. (northbound) and p.m. (southbound) peak hours, I-680 is expected to experience LOS F under cumulative no-project conditions. The southbound lanes from Alcosta Boulevard to I-580 would experience LOS F during the p.m. peak hour.

This impact is considered significant because the freeway would operate at LOS E and LOS F.

### **Mitigation Measure**

- 6.3: This measure is described above.

Implementing mitigation measure 6.3 would substantially reduce the impact, but not to a less-than-significant level because the freeway would still operate at LOS E and LOS F.

#### **Impact: LOS F Expected on I-580 between Hacienda Drive and Fallon Road under Cumulative No-Project Conditions**

During the a.m. (westbound) and p.m. (eastbound) peak hours, I-580 is expected to experience LOS F under cumulative no-project conditions.

This impact is considered significant because the freeway would operate at LOS F.

### **Mitigation Measure**

- 6.3: This measure is described above.

Implementing mitigation measure 6.3 would substantially reduce the impact, but not to a less-than-significant level because the freeway would still operate at LOS F.

**Impact: LOS F Expected on I-680 between Bollinger Canyon Road and I-580 under Cumulative With-Project Conditions**

During the a.m. (northbound) and p.m. (southbound and northbound) peak hours, I-680 is expected to experience LOS F from Bollinger Canyon Road to I-580.

Comparing cumulative with-project impacts to cumulative no-project impacts shows that the V/C ratio improves slightly from 1.28 to 1.22 with the project on the section from Bollinger Canyon Road to Alcosta Boulevard in the a.m. (northbound) peak hour. The same comparison for the segment from Alcosta Boulevard to I-580 shows improvement from 1.19 to 1.14 during the a.m. peak hour. However, during the p.m. (southbound) peak hour, the segment from Bollinger Canyon Road to Alcosta Boulevard results in no degradation with the project (V/C 1.21), and from Alcosta Boulevard to I-580, it worsens slightly with the project.

This impact is considered significant because the freeway would operate at LOS F. However, the project improves conditions or results in no degradation at all the affected segments but one. Only the segment from Alcosta Boulevard to I-580 during the p.m. peak hour is a significant impact attributable to the project.

**Mitigation Measure**

- 6.3: This measure is described above.

Implementing mitigation measure 6.3 would substantially reduce the impact, but not to a less-than-significant level because the freeway would still operate at LOS F on the segment from Alcosta Boulevard to I-580.

**Impact: LOS F Expected on I-580 between Hacienda Drive and Fallon Road under Cumulative With-Project Conditions**

During the a.m. (westbound) and p.m. (eastbound) peak hours, I-580 is expected to experience LOS F from Hacienda Drive to Fallon Road. Comparing cumulative with-project conditions to cumulative non-project conditions for the a.m. (westbound) peak hour shows that the V/C ratio improves slightly with the project from 1.16 to 1.10. However, for this same segment in the p.m. (eastbound) peak hour the project degrades conditions slightly from .67 to .69, resulting in a significant impact attributable to the project.

This impact is considered significant because the freeway would operate at LOS F.

## **Mitigation Measure**

- 6.3: This measure is described above.

Implementing mitigation measure 6.3 would substantially reduce the impact, but not to a less-than-significant level because the freeway would still operate at LOS F on the segment from Hacienda Drive to Fallon Road.

## **Intersection Analysis**

The forecasted peak-hour traffic volumes were analyzed to determine intersection performance at each of the 31 study locations. Tables 6-12 (see Appendix D-7) and 6-13 (see Appendix D-8), respectively, present the 2010 and cumulative conditions V/C ratios and LOS. All the planned roadway and intersection improvements in the Tri-Valley region shown in Figure 6-5 and Appendix D-5 were included in the base case assumptions for making the LOS calculations at the study intersections.

Intersections with a LOS above D and a V/C ratio greater than 0.89 on basic routes were considered to experience an unacceptable level of service and a significant impact consistent with the adopted standards by the CCTA.

The analysis presented below compares the following conditions:

- Existing vs. 2010 No Project: This comparison indicates 2010 traffic conditions without the project. Some of these mitigation measures are not fully funded and would benefit the project. It will be important to assess the fair-share portion of these mitigation measures for the project proponents in the context of other planned growth in this area.
- 2010 No Project vs. 2010 With Project: This comparison indicates 2010 conditions with the project.
- Cumulative No Project vs. Cumulative With Project: This comparison indicates cumulative conditions with the project and all other reasonably foreseen projects as identified in Appendix B.



Table 6-12. Intersection Conditions for Year 2010 without Mitigation

Intersection Number	Node Number	Intersection		No-Project Conditions				With-Project Conditions			
				A.M.		P.M.		A.M.		P.M.	
		North-South Street	East-West Street	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
1	943	I-680 SB off-ramp	Diablo Road	0.75	C	0.57	A	0.72	C	0.67	B
2	942	I-680 NB off-ramp	Diablo Road	0.52	A	0.64	B	0.74	C	0.75	C
3	505	Camino Tassajara	Diablo Road	0.80	C	0.39	A	1.05	F	0.49	A
4	947	I-680 SB off-ramp	Sycamore Valley Road	0.37	A	0.71	C	0.35	A	0.71	C
5	945	I-680 NB off-ramp	Sycamore Valley Road	0.84	D	0.43	A	0.97	E	0.55	A
6	506	Sycamore Valley Road	Camino Tassajara	0.52	A	0.61	B	0.76	C	0.91	E
7	564	Blackhawk Road	Camino Tassajara	0.90	D	0.82	D	1.46	F	1.16	F
8	1416	Tassajara Road	Highland Road	0.45	A	0.41	A	0.35	A	0.36	A
9	951	I-680 SB off-ramp	Crow Canyon Road	0.77	C	0.70	B	0.76	C	0.70	B
10	949	I-680 NB off-ramp	Crow Canyon Road	0.70	B	0.63	B	0.68	B	0.69	B
11	1361	Alcosta Boulevard	Crow Canyon Road	0.73	C	0.82	D	0.74	C	0.79	C
12	1369	Dougherty Road	Crow Canyon Road	0.41	A	0.67	B	0.57	A	0.84	D
13	955	I-680 SB off-ramp	Bollinger Canyon Road	0.44	A	0.66	B	0.44	A	0.64	B
14	953	I-680 NB off-ramp	Bollinger Canyon Road	1.50	F	0.97	E	1.43	F	0.96	E
15	521	Camino Ramon	Bollinger Canyon Road	0.72	C	0.80	C	0.77	C	0.89	D
16	522	Alcosta Boulevard	Bollinger Canyon Road	0.92	E	0.98	E	1.12	F	1.10	F
17	551	Dougherty Road	Bollinger Canyon Road	0.31	A	0.40	A	0.72	C	0.80	C
18	2601	Bollinger Canyon Road	East Branch Road	0.00	--	0.00	--	0.41	A	0.39	A
19	2602	Bollinger Canyon Road	Windemere Parkway	0.00	--	0.00	--	0.45	A	0.46	A

Table 6-12. Continued

Intersection				No-Project Conditions				With-Project Conditions			
				A.M.		P.M.		A.M.		P.M.	
				V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
Intersection Number	Node Number	North-South Street	East-West Street								
20	2507	Dougherty Road	Bollinger Canyon Road	0.19	A	0.20	A	0.65	B	0.77	C
21	958	I-680 SB off-ramp	Alcosta Boulevard	0.49	A	0.39	A	0.48	A	0.42	A
22	957	I-680 NB off-ramp	Alcosta Boulevard	1.06	F	0.63	B	1.00	E	0.67	B
23	2264	Alcosta Boulevard	Old Ranch Road	0.16	A	0.17	A	0.16	A	0.22	A
24	2265	Dougherty Road	Old Ranch Road	0.21	A	0.19	A	0.66	B	0.65	B
25	2604	East Branch Road	Windemere Parkway	0.00	--	0.00	--	0.40	A	0.44	A
26	2522	Tassajara Road	Windemere Parkway	0.11	A	0.11	A	0.46	A	0.47	A
27	2307	Dougherty Road	Dublin Boulevard	0.63	B	0.65	B	0.84	D	0.67	B
28	2308	Dougherty Road	I-580 WB off-ramp	0.40	A	0.45	A	0.43	A	0.43	A
29	2309	Hopyard Road	I-580 EB off-ramp	0.70	B	0.71	C	0.73	C	0.75	C
30	2322	Tassajara Road	I-580 WB off-ramp	0.58	A	0.85	D	0.57	A	0.85	D
31	2323	Santa Rita Road	I-580 EB off-ramp	0.96	E	1.28	F	0.90	D	1.28	F

Notes: LOS = level of service.

V/C = volume to capacity ratio.

-- = Intersections with V/C ratio of 0.00 will not be constructed for that scenario.

Table 6-13. Intersection Conditions for Cumulative without Mitigation

Intersection Number	Node Number	Intersection		No-Project Conditions				With-Project Conditions			
				A.M.		P.M.		A.M.		P.M.	
		North-South Street	East-West Street	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
1	943	I-680 SB off-ramp	Diablo Road	0.81	D	0.56	A	0.80	C	0.65	B
2	942	I-680 NB off-ramp	Diablo Road	0.48	A	0.63	B	0.59	A	0.73	C
3	505	Camino Tassajara	Diablo Road	0.72	C	0.40	A	0.95	E	0.47	A
4	947	I-680 SB off-ramp	Sycamore Valley Road	0.39	A	0.65	B	0.37	A	0.63	B
5	945	I-680 NB off-ramp	Sycamore Valley Road	0.80	C	0.42	A	0.93	E	0.53	A
6	506	Sycamore Valley Road	Camino Tassajara	0.47	A	0.56	A	0.72	C	0.89	D
7	564	Blackhawk Road	Camino Tassajara	0.99	E	0.96	E	1.50	F	1.26	F
8	1416	Tassajara Road	Highland Road	0.77	C	0.71	C	0.78	C	0.69	B
9	951	I-680 SB off-ramp	Crow Canyon Road	0.79	C	0.65	B	0.75	C	0.66	B
10	949	I-680 NB off-ramp	Crow Canyon Road	0.69	B	0.68	B	0.63	B	0.69	B
11	1361	Alcosta Boulevard	Crow Canyon Road	0.72	C	0.86	D	0.73	C	0.85	D
12	1369	Dougherty Road	Crow Canyon Road	0.48	A	0.77	C	0.59	A	0.94	E
13	955	I-680 SB off-ramp	Bollinger Canyon Road	0.44	A	0.64	A	0.46	A	0.61	A
14	953	I-680 NB off-ramp	Bollinger Canyon Road	1.49	F	0.95	E	1.41	F	0.93	E
15	521	Camino Ramon	Bollinger Canyon Road	0.71	C	0.81	D	0.74	C	0.88	D
16	522	Alcosta Boulevard	Bollinger Canyon Road	0.91	E	0.94	E	1.12	F	1.11	F
17	551	Dougherty Road	Bollinger Canyon Road	0.33	A	0.50	A	0.77	C	0.83	D
18	2601	Bollinger Canyon Road	East Branch Road	0.00	--	0.00	--	0.45	A	0.46	A
19	2602	Bollinger Canyon Road	Windemere Parkway	0.00	--	0.00	--	0.51	A	0.54	A
20	2507	Dougherty Road	Bollinger Canyon Road	0.27	A	0.28	A	0.73	C	0.79	C



Table 6-13. Continued

Intersection				No-Project Conditions				With-Project Conditions			
				A.M.		P.M.		A.M.		P.M.	
				V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
Intersection Number	Node Number	North-South Street	East-West Street								
21	958	I-680 SB off-ramp	Alcosta Boulevard	0.46	A	0.36	A	0.52	A	0.38	A
22	957	I-680 NB off-ramp	Alcosta Boulevard	0.91	E	0.62	B	0.91	E	0.67	B
23	2264	Alcosta Boulevard	Old Ranch Road	0.15	A	0.16	A	0.17	A	0.23	A
24	2265	Dougherty Road	Old Ranch Road	0.30	A	0.26	A	0.72	C	0.72	C
25	2604	East Branch Road	Windemere Parkway	0.00	--	0.00	--	0.64	B	0.56	A
26	2522	Tassajara Road	Windemere Parkway	0.00	--	0.00	--	0.23	C	0.66	B
27	2307	Dougherty Road	Dublin Boulevard	0.76	C	0.81	D	0.94	E	0.90	D
28	2308	Dougherty Road	I-580 WB off-ramp	0.47	A	0.45	A	0.55	A	0.49	A
29	2309	Hopyard Road	I-580 EB off-ramp	0.88	D	0.76	C	0.90	D	0.78	C
30	2322	Tassajara Road	I-580 WB off-ramp	0.91	E	0.95	E	0.86	D	0.91	E
31	2323	Santa Rita Road	I-580 EB off-ramp	1.16	F	1.30	F	1.12	F	1.25	F

Notes: LOS = level of service.

V/C = volume to capacity ratio.

-- = Intersections with V/C ratio 0.00 will not be constructed for that scenario.

### **Impact: Unacceptable Level of Service Expected at Five Intersections under 2010 No-Project Conditions**

The following intersections are expected to experience an unacceptable level of service (V/C ratio above 0.89) even without the project during one or two peak hours (the intersection numbers presented below correspond with those presented in Table 6-12):

- Intersection 7. Blackhawk Road/Camino Tassajara,
- Intersection 14. I-680 northbound off-ramp/Bollinger Canyon Road,
- Intersection 16. Alcosta Boulevard/Bollinger Canyon Road,
- Intersection 22. I-680 northbound off-ramp/Alcosta Boulevard,
- Intersection 31. Santa Rita Road/I-580 eastbound offramp.

This impact is considered significant because these intersections operate at an unacceptable LOS.

### **Mitigation Measure**

- 6.4: The County, in conjunction with neighboring jurisdictions, should require all development contributing to 2010 No-Project traffic conditions to contribute their pro rata shares toward the following roadway improvements (Table 6-14). Calculation of pro rata shares shall include an assessment of the benefits accrued to the project proponents.
  - 6.4a Blackhawk Road/Camino Tassajara: Restripe Camino Tassajara eastbound to provide one left-turn lane, two through lanes, and one right-turn lane; restripe northbound right-turn lane to free-flow right-turn lane;
  - 6.4b I-680 northbound off-ramp/Bollinger Canyon Road: widen to add fourth westbound through lane;
  - 6.4c Alcosta Boulevard/Bollinger Canyon Road: Widen to add one free-flow right-turn lane to Alcosta Boulevard southbound, modify traffic signal control;
  - 6.4d I-680 northbound off-ramp/Alcosta Boulevard: Widen and restripe to provide second westbound right turn lane, widen northbound on-ramp to accept two right-turn lanes; and
  - 6.4e Santa Rita Road/I-580 eastbound offramp: Add one through lane to Santa Rita Road southbound; widen eastbound off-ramp to provide two left-turn one shared left-turn plus through lane, and one free right-turn lane.

Table 6-14. Intersection Impacts and Mitigation for Year 2010 (No-Project) Conditions

Intersection Number	Intersection	A.M. Peak Hour				P.M. Peak Hour				Mitigation Measures Required to Improve Level of Service to Acceptable Levels under No-Project Conditions
		With Mitigation		Without Mitigation		With Mitigation		Without Mitigation		
		LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	
7	Blackhawk Road/Camino Tassajara	C	0.78	E	0.90					EB - Restripe to provide one left-turn lane, two through lanes, and one right-turn lane; NB - restripe right turn to free right-turn lane.
14	I-680 NB off-ramp/Bollinger Canyon Road**1	F	1.50	F	1.50	C	0.79	E	0.97	Widen and add fourth westbound through lane.
16	Alcosta Boulevard/Bollinger Canyon Road	B	0.70	E	0.92	B	0.68	E	0.98	SB - Widen to add one free-flow right-turn lane. Modify traffic signal control.
22	I-680 NB off-ramp/Alcosta Boulevard	D	0.88	F	1.06					WB - Widen and restripe to provide second right-turn lane; NB - widen on-ramp to serve second right-turn lane; modify traffic signal control.
31	Santa Rita Road/I-580 EB off-ramp	B	0.69	E	0.96	D	0.87	F	1.28	SB - Add one through lane; EB - provide two left-turn lanes, one shared left plus through lane, and one free right-turn lane.

\* See Table 6-12.

\*\* These intersections cannot be mitigated to acceptable levels (0.89 minimum V/C ratio), except under Measure C/CMP Programs.

<sup>1</sup> Very heavy northbound off-ramp in a.m. peak hour turning right to eastbound Bollinger Canyon Road; exceeds capacity.

Notes: LOS = level of service.

V/C = volume to capacity ratio.

EB = eastbound.

NB = northbound.

SB = southbound.

WB = westbound.



Impacts on all these intersections can be mitigated to less-than-significant levels, because these intersections would operate at an acceptable LOS with the exception of the I-680 northbound off-ramp/Bollinger Canyon Road, whose impacts are significant and unavoidable (unless they can be mitigated under measure 6.3, which applies to Routes of Regional Significance) because this intersection would operate at an unacceptable LOS.

**Impact: Drop in LOS from Acceptable to Unacceptable Conditions at Three Intersections under 2010 With-Project Conditions**

The following intersections would experience a drop in V/C ratio from less than 0.89 to greater than 0.89 at one or two peak hours with implementation of the proposed project:

- Intersection 3. Camino Tassajara/Diablo Road,
- Intersection 5. I-680 northbound off-ramp/Sycamore Valley Road, and
- Intersection 6. Sycamore Valley Road/Camino Tassajara.

This impact is considered significant because these intersections would operate at an unacceptable LOS.

**Mitigation Measures**

The mitigation measures identified below are required in addition to those above, which are required under no-project conditions.

- 6.5: The project proponents should contribute a pro rata fair share to fund the following roadway improvements (Table 6-15):
  - 6.5a Camino Tassajara/Diablo Road: Add a second left-turn lane northbound, widen for a second westbound through lane;
  - 6.5b I-680 northbound off-ramp/Sycamore Valley Road: Add one lane for one left-turn lane, two through lanes, and one right-turn lane to the I-680 off-ramp.
  - 6.5c Sycamore Valley Road/Camino Tassajara: Widen for a second left-turn lane on southbound Camino Tassajara; and
- 6.6: The project proponents should implement the following measures to reduce the demand for automobile travel to and from the planning area:
  - 6.6a provide transit service to Dougherty Valley to reduce the offsite trip generation; at a minimum, regularly scheduled service should be provided

Table 6-15. Intersection Impacts and Mitigation for Year 2010 (With-Project Conditions)

Intersection Number	Intersection	A.M. Peak Hour				P.M. Peak Hour				Mitigation Measures Required to Improve Level of Service to Acceptable Levels under No-Project Conditions
		With Mitigation		Without Mitigation*		With Mitigation		Without Mitigation*		
		LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	
3	Camino Tassajara/Diablo Road***	A	0.55	F	1.05					NB - Add second left-turn lane; WB - widen for second through lane.
5	I-680 NB off-ramp/Sycamore Valley Road	B	0.65	E	0.97					WB - Widen to provide an additional right-turn lane onto northbound on-ramp; widen and restripe on-ramp to receive additional right-turn lane; modify traffic signal.
6	Sycamore Valley Road/Camino Tassajara					B	0.69	E	0.91	SB - Widen for second left-turn lane.
7	Blackhawk Road/Camino Tassajara	D	0.89	F	1.16					EB - Modify signal for right-turn overlap phase; NB - restripe second through lane to be second left-turn lane.
16	Alcosta Boulevard/Bollinger Canyon Road	D	0.89	D	0.89	C	0.72	F	1.10	EB - Restripe to provide two left-turn lanes, three through lanes, and one right-turn lane; WB - add one through lane and restripe shared left-through lane to one exclusive left-turn lane.

\* Assumes mitigations described in Table 6-14 (existing versus 2010 without project conditions).

\*\*\* Widening required on Diablo Road between Camino Tassajara and I-680 NB off-ramp.

Notes: LOS = level of service.

V/C = volume-to-capacity ratio.

NB = northbound.

SB = southbound.

EB = eastbound.

to major activity centers, such as Bishop Ranch, Blackhawk Plaza, Hacienda Business Park, Stoneridge Mall, the East Dublin BART station, and coordinated with existing service provided by CCTA and Wheels;

6.6b provide park-and-ride lots near the village center to encourage ridesharing and use of transit alternatives;

6.6c provide commercial and service facilities that will serve the Dougherty Valley and Tassajara Valley communities;

- 6.7: provide planned roadway improvements according to the DVSP to serve phased growth of the area;
- 6.8: install traffic signals at all study intersections onsite.

Implementing mitigation measures 6.5 and 6.6 would reduce this impact to a less-than-significant level because these intersections would operate at an acceptable LOS.

#### **Impact: Further Degradation of an Unacceptable LOS at Two Intersections under 2010 With-Project Conditions**

The following intersections would experience further degradation of an unacceptable LOS with implementation of the project:

- Intersection 7. Blackhawk Road/Camino Tassajara and
- Intersection 16. Alcosta Boulevard/Bollinger Canyon Road.

This impact is considered significant because these intersections would operate at an unacceptable LOS.

#### **Mitigation Measures**

The mitigation measures identified below are required in addition to those above, which are required under no-project conditions.

- 6.6, 6.7, and 6.8: These measures are described above.



- 6.9: The project proponents should fund their share of the following roadway improvements.
  - 6.9a Blackhawk Road/Camino Tassajara: Modify signal for right-turn overlap phase eastbound and restripe Blackhawk Road's northbound second through right-turn lane to be a second left-turn lane and
  - 6.9b Alcosta Boulevard/Bollinger Canyon Road: Widen eastbound to provide two left-turn lanes, three through lanes, and one right-turn lane; restripe westbound shared left-turn lane to provide one exclusive left-turn lane.

Implementing mitigation measures 6.6 and 6.7 would reduce this impact to a less-than-significant levels because these intersections would operate at an acceptable LOS.

**Impact: Drop in LOS from Acceptable to Unacceptable Conditions at Five Intersections under Cumulative With-Project Conditions**

The following intersections would experience a drop in V/C ratio from less than 0.89 to greater than 0.89 at one or two peak hours with implementation of the proposed project:

- Intersection 3. Camino Tassajara/Diablo Road,
- Intersection 5. I-680 northbound off-ramp/Sycamore Valley Road,
- Intersection 12. Dougherty Road/ Crow Canyon Road,
- Intersection 27. Dougherty Road/Dublin Boulevard, and
- Intersection 29. Hopyard Road/I-580 eastbound off-ramp.

This impact is considered significant because these intersections would operate at an unacceptable LOS.

**Mitigation Measure**

- 6.10: The project proponents should contribute a pro rata fair share to fund implementation of the following roadway improvements (Table 6-16) in addition to those previously specified under cumulative no-project conditions:
  - 6.10a Camino Tassajara/Diablo Road: No additional mitigation measures than those provided in Table 6-15;
  - 6.10b I-680 northbound off-ramp/Sycamore Valley Road: Widen to provide an additional westbound right-turn lane onto northbound on-ramp. Widen and restripe on-ramp to receive additional turn lane.

Table 6-16. Intersection Impacts and Mitigation for Cumulative With-Project Conditions

Intersection Number	Intersection	A.M. Peak Hour				P.M. Peak Hour				Mitigation Measures Required to Improve Level of Service to Acceptable Levels under No-Project Conditions*
		With Mitigation		Without Mitigation		With Mitigation		Without Mitigation		
		LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	
3	Camino Tassajara/Diablo Road	A	0.50	E	0.95					No additional mitigation than provided in Table 6-15.
5	I-680 NB off-ramp/Sycamore Valley Road	D	0.89	E	0.93					No additional mitigation than provided in Table 6-15.
7	Blackhawk Road/Camino Tassajara	D	0.83	F	1.19					EB - Add a third left-turn lane to southbound Crow Canyon Road.
12	Dougherty Road/Crow Canyon Road					D	0.83	E	0.94	NB - Restripe right-turn lane to a free right-turn lane.
16	Alcosta Boulevard/Bollinger Canyon Road	D	0.88	F	1.12	C	0.71	F	1.11	No additional mitigation than provided in Table 6-15.
27	Dougherty Road/Dublin Boulevard**	E	0.94	E	0.94	D	0.90	D	0.90	EB - Add second left-turn lane.
29	Hopyard Road/I-580	A	0.39	D	0.90					EB - widen and restripe double right-turn lane to single free-flow right-turn lane.

\* Same mitigation measures as Table 6-15 (year 2010 with project versus year 2010 without project), in addition to those listed below.

\*\* These intersections cannot be mitigated to acceptable levels (0.89 minimum V/C ratio), except under Measure C/CMP Programs.

Notes: LOS = level of service.

V/C = volume-to-capacity ratio.

EB = eastbound.

NB = northbound.

6.10c Dougherty Road/Crow Canyon Road: Restripe Dougherty Road's northbound right-turn lane to provide a free right-turn lane.

Impacts on all of these intersections can be mitigated to less-than-significant levels because the intersections would operate at an acceptable LOS, with the exception of Dougherty Road/Dublin Boulevard, which has impacts that are significant and unavoidable (although they may be mitigated under the Alameda County CMP) because the intersection would operate at an unacceptable LOS.

**Impact: Further Degradation of an Unacceptable LOS at Two Intersections under Cumulative With-Project Conditions**

The following intersections would experience further degradation of an unacceptable LOS with implementation of the project:

- Intersection 7. Blackhawk Road/Camino Tassajara, and
- Intersection 16. Alcosta Boulevard/Bollinger Canyon Road.

This impact is considered significant because these intersections would operate at an unacceptable LOS.

**Mitigation Measure**

- 6.11: The project proponents should fund their share of the following intersection improvements, in addition to those previously specified under cumulative no-project conditions. The project proponents' share would be that amount required to return the intersection to its LOS under no-project conditions.
  - Blackhawk Road/Camino Tassajara: Add a third left-turn lane to southbound Crow Canyon Road and
  - Alcosta Boulevard/Bollinger Canyon Road: No additional mitigation measures other than those provided in Table 6-15.

Implementing mitigation measure 6.9 would reduce this impact to a less-than-significant level because these intersections would operate at an acceptable LOS.





## **Chapter 7. Air Quality**

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### **SETTING**

#### **Topography and Climate**

The planning area is located in a valley that lies between the San Francisco Bay and the Central Valley. The valley is at an approximate elevation of 400 feet, and the hills surrounding the valley exceed 1,000 feet, creating a natural barrier that inhibits the flow of air through the area.

The climate is generally characterized by hot, dry summers and cool, moist winters. Monthly average temperatures range from about 45°F in January to about 70°F in July. Annual extreme temperatures range from minimums in the upper 20s and low 30s to maximums in the 100-110° range.

#### **Ambient Air Quality Standards**

The State of California and the Federal government have established ambient air quality standards for several pollutants (Table 7-1). For some pollutants, separate standards have been set for different time periods. Most standards have been set to protect public health; however, for some pollutants, standards have been based on other values, such as protection of crops, protection of materials, or avoidance of nuisance conditions.

#### **Ambient Air Quality Conditions**

The air pollutants of greatest concern in the planning area include carbon monoxide (CO), various components of photochemical smog (ozone and other pollutants), and particulate matter. CO is a mildly toxic pollutant that interferes with oxygen transport to body tissues. The major effects of ozone and other components of photochemical smog include reductions in plant growth and crop yield, chemical deterioration of various materials, and irritation of the respiratory system and eyes. Particulate matter can be responsible for a wide range of pollution effects, including visibility reduction, respiratory irritation, corrosion of structures and materials, and economic effects related to soiling of materials.

Table 7-1. Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Averaging Time	Standard, as parts per million		Standard, as micrograms per cubic meter		Violation Criteria	
			California	National	California	National	California	National
Ozone	O <sub>3</sub>	1 hour	0.09	0.12	180	235	If exceeded	If exceeded on more than 3 days in 3 years
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
(Lake Tahoe only)		1 hour	20	35	23,000	40,000		
		8 hours	6	--	7,000	--		
Nitrogen dioxide	NO <sub>2</sub>	Annual average	--	0.053	--	100	if exceeded	If exceeded
		1 hour	0.25	--	470	--		
Sulfur dioxide	SO <sub>2</sub>	Annual average	--	0.03	--	80	If exceeded	If exceeded
		24 hours	0.05	0.14	131	365		If exceeded on more than 1 day per year
		1 hour	0.25	--	655	--		
Hydrogen sulfide	H <sub>2</sub> S	1 hour	0.03	--	42	--	If equaled or exceeded	
Vinyl chloride	C <sub>2</sub> H <sub>3</sub> Cl	24 hours	0.010	--	26	--	If equaled or exceeded	
Particulate matter, 10 microns or less	PM10	Annual geometric mean	--	--	30	--	If exceeded	
		Annual arithmetic mean	--	--	--	50		If exceeded
		24 hours	--	--	50	150		If exceeded on more than 1 day per year
Sulfate particles	SO <sub>4</sub>	24 hours	--	--	25	--	If equaled or exceeded	
Lead particles	Pb	Calendar quarter	--	--	--	1.5	If equaled or exceeded	If exceeded on more than 1 day per year
		30 days	--	--	1.5	--		

Notes: All standards are based on measurements at 25° C and 1 atmosphere pressure.

National standards shown are the primary (health effects) standards.

The California 24-hour standard for SO<sub>2</sub> applies only when state 1-hour O<sub>3</sub> or 24-hour PM10 standards are being violated concurrently.



The closest air quality monitoring station to the planning area is in Livermore. Air quality monitoring data from this station show occasional violations of the Federal and State ozone standards and the State standard for particulate matter smaller than 10 microns in diameter (PM<sub>10</sub>). These data are shown in Table 7-2. Over the past 3 years, the State ozone standard has been violated an average of 13 times each year at the Livermore monitoring station. The State and Federal CO 8-hour and 1-hour standards have not been exceeded in the past 3 years, but the State PM<sub>10</sub> standard has been violated an average of 10 times each year.

Ozone and CO problems stem primarily from vehicle traffic associated with urban development. A variety of emission sources contribute to particulate matter problems in the area. Major contributors to particulate matter problems include agricultural activities, dust resuspended by vehicle traffic, and aerosols formed by photochemical smog reactions.

### **Existing Concentrations**

#### **Carbon Monoxide**

CO modeling results for existing conditions are shown in Table 7-3. The assumptions used to conduct the modeling analysis for existing and future conditions are described in the carbon monoxide modeling section beginning on page 7-5. For existing conditions, the State 1-hour CO standard of 20 ppm was exceeded at 21 of the 96 receptor locations analyzed. The State and Federal 8-hour standard of 9 ppm was exceeded at 32 of the receptor locations. The 96 receptors include locations within and outside of the w\_r\_t planning area (Figure 7-1). The highest 1-hour and 8-hour concentrations were 29.9 ppm and 19.7 ppm, respectively, at the interchange of I-680 and I-580.

### **Air Quality Management Programs**

Air pollution control programs were established in California prior to the enactment of Federal requirements. Federal Clean Air Act legislation in the 1970s resulted in a gradual merger of local and Federal air quality programs, particularly industrial source air quality permit programs. Air quality management planning programs developed during the past decade have generally been in response to requirements established by the Federal Clean Air Act. The enactment of the California Clean Air Act in 1988 and the Federal Clean Air Act Amendments of 1990 have produced additional changes in the structure and administration of air quality management programs.

The California Clean Air Act requires preparation of an air quality attainment plan for areas that violate State air quality standards for carbon monoxide, sulfur dioxide, nitrogen dioxide, or ozone. No locally prepared attainment plans are required for areas that violate the State PM<sub>10</sub> standards. PM<sub>10</sub> attainment issues are being addressed by the California Air Resources Board.

Table 7-2. Summary of Air Quality Monitoring Data for Livermore

Parameter	Carbon Monoxide (ppm)			Ozone (ppm)			PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )		
	1988	1989	1990	1988	1989	1990	1988	1989	1990
Peak-hour value	8	10	8	.15	.14	.13	NA	NA	NA
Peak 8-hour value	4.4	4.4	4.5	NA	NA	NA	NA	NA	NA
Peak 24-hour value	NA	NA	NA	NA	NA	NA	69	108	137
Days above standard	0	0	0	21	9	8	8	13	10

	Receptor Location	Receptor Number	Existing Conditions		2010 No-Project Conditions		2010 With-Project Conditions		2010 With-Project Conditions (Mitigated)	
			1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level
7-5	Tassajara Road/I-580	1	13.9	8.5	11.7	7.0	12.4	7.5	11.3	6.7
		2	14.3	8.8	11.7	7.0	12.7	7.7	11.6	6.9
		3	15.0	9.3	14.8	9.2	14.6	9.0	14.4	8.9
		4	14.9	9.2	14.2	8.7	14.7	9.1	13.8	8.5
	Tassajara Road/Windemere Parkway	5	8.9	5.0	9.0	5.1	10.3	6.0	10.3	6.0
		6	9.1	5.2	7.9	4.3	8.9	5.0	8.9	5.0
		7	9.1	5.2	7.8	4.3	8.5	4.8	8.5	4.8
		8	8.9	5.0	8.5	4.8	9.9	5.7	9.9	5.7
	Tassajara Road/Highland Road	9	8.0	4.4	7.2	3.8	7.4	4.0	7.4	4.0
		10	8.1	4.5	7.3	3.9	7.4	4.0	7.4	4.0
		11	8.4	4.7	7.4	4.0	7.5	4.1	7.5	4.1
		12	8.1	4.5	7.1	3.8	7.4	4.0	7.3	3.9
	Dougherty Road/I-580	13	20.2	12.9	12.6	7.6	12.2	7.3	12.1	7.3
		14	27.1	17.8	14.9	9.2	15.2	9.4	15.2	9.4
		15	20.5	13.2	12.9	7.8	12.4	7.5	12.4	7.5
		16	23.3	15.1	14.4	8.9	13.6	8.3	13.6	8.3
	I-680/I-580	17	19.5	12.5	11.5	6.9	12.0	7.2	12.0	7.2
		18	29.9	19.7	16.2	10.1	15.7	9.8	15.7	9.8
		19	19.1	12.2	12.2	7.3	12.2	7.3	12.2	7.3
		20	28.5	18.8	17.9	11.3	17.9	11.3	17.8	11.3
	Alcosta Boulevard/Old Ranch Road	21	9.8	5.7	7.7	4.2	7.8	4.3	7.8	4.3
		22	10.6	6.2	8.0	4.4	8.1	4.5	8.0	4.4
		23	10.9	6.4	8.1	4.5	8.1	4.5	8.1	4.5
		24	9.8	5.7	7.7	4.2	7.8	4.3	7.8	4.3
	Alcosta Boulevard/I-680	25	21.2	13.6	12.0	7.2	11.5	6.9	11.5	6.9
		26	20.1	12.9	11.3	6.7	10.9	6.4	10.9	6.4
		27	20.6	13.2	11.4	6.8	11.0	6.5	11.0	6.5
		28	22.0	14.2	12.3	7.4	11.8	7.1	11.7	7.0



Table 7-3. Continued

Receptor Location	Receptor Number	Existing Conditions		2010 No-Project Conditions		2010 With-Project Conditions		2010 With-Project Conditions (Mitigated)	
		1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level
Windemere Parkway/East Branch Road	29	8.9	5.0	7.2	3.8	7.7	4.2	7.6	4.1
	30	8.9	5.0	7.2	3.8	7.7	4.2	7.6	4.1
	31	8.9	5.0	7.2	3.8	7.9	4.3	7.9	4.3
	32	8.9	5.0	7.2	3.8	8.0	4.4	8.0	4.4
Dougherty Road/Old Ranch Road	33	9.4	5.4	8.0	4.4	9.3	5.3	9.3	5.3
	34	9.5	5.5	7.7	4.2	9.3	5.3	9.3	5.3
	35	9.6	5.5	7.7	4.2	9.4	5.4	9.4	5.4
	36	9.3	5.3	8.1	4.5	9.6	5.5	9.6	5.5
South Dougherty Road/Bollinger Canyon Road	37	9.1	5.2	7.8	4.3	9.7	5.6	9.7	5.6
	38	9.2	5.2	7.6	4.1	8.9	5.0	8.9	5.0
	39	9.3	5.3	7.7	4.2	9.6	5.5	9.6	5.5
	40	9.1	5.2	7.7	4.2	9.5	5.5	9.5	5.5
Bollinger Canyon Road/Windemere Parkway	41	9.1	5.2	7.4	4.0	8.6	4.8	8.6	4.8
	42	9.1	5.2	7.3	3.9	8.1	4.5	8.1	4.5
	43	9.1	5.2	7.3	3.9	8.2	4.5	8.1	4.5
	44	9.1	5.2	7.3	3.9	8.5	4.8	8.5	4.8
Bollinger Canyon Road/East Branch Road	45	9.0	5.1	7.2	3.8	9.1	5.2	9.1	5.2
	46	9.0	5.1	7.2	3.8	8.7	4.9	8.7	4.9
	47	9.0	5.1	7.2	3.8	8.4	4.7	8.4	4.7
	48	9.0	5.1	7.2	3.8	8.5	4.8	8.5	4.8
North Dougherty Road/Bollinger Canyon Road	49	9.3	5.3	8.0	4.4	11.1	6.6	8.9	5.0
	50	9.2	5.2	8.4	4.7	13.1	8.0	11.4	6.8
	51	9.6	5.5	9.1	5.2	13.9	8.5	11.0	6.5
	52	9.4	5.4	7.9	4.3	12.3	7.4	10.0	5.8
Crow Canyon Road/Dougherty Road	53	10.0	5.8	9.2	5.2	13.1	8.0	13.1	8.0
	54	11.0	6.5	10.6	6.2	18.0	11.4	18.0	11.4
	55	12.3	7.4	11.2	6.6	14.0	8.6	14.0	8.6
	56	9.9	5.7	9.7	5.6	16.6	10.4	16.5	10.4

Receptor Location	Receptor Number	Existing Conditions		2010 No-Project Conditions		2010 With-Project Conditions		2010 With-Project Conditions (Mitigated)	
		1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level
Camino Tassajara Road/Crow Canyon Road	57	9.2	5.2	10.1	5.9	10.8	6.4	10.8	6.4
	58	10.5	6.1	11.0	6.5	13.6	8.3	13.6	8.3
	59	10.3	6.0	12.1	7.3	14.4	8.9	14.4	8.9
	60	9.8	5.7	11.5	6.9	14.1	8.7	14.1	8.7
Bollinger Canyon Road/Alcosta Boulevard	61	12.0	7.2	10.5	6.2	11.4	6.8	10.1	5.9
	62	14.0	8.6	12.5	7.6	13.2	8.0	11.5	6.9
	63	12.3	7.4	11.4	6.8	12.4	7.5	10.2	5.9
	64	11.6	6.9	10.5	6.1	11.0	6.5	9.2	5.2
Bollinger Canyon Road/Camino Ramon Road	65	13.1	8.0	11.7	7.0	12.1	7.3	10.2	5.9
	66	14.3	8.8	11.5	6.9	11.7	7.0	10.9	6.4
	67	12.9	7.8	12.7	7.7	13.1	8.0	10.6	6.2
	68	12.1	7.3	12.1	7.3	12.4	7.5	10.0	5.8
Bollinger Canyon Road/I-680	69	25.1	16.4	14.3	8.8	14.6	9.0	13.3	8.1
	70	24.8	16.2	14.7	9.1	14.3	8.8	12.5	7.6
	71	22.4	14.5	14.8	9.2	14.5	9.0	12.8	7.8
	72	27.5	18.1	14.7	9.1	14.8	9.2	13.4	8.2
Crow Canyon Road/Alcosta Boulevard	73	11.3	6.7	10.8	6.4	10.0	5.8	10.0	5.8
	74	12.0	7.2	12.4	7.5	11.2	6.6	11.2	6.6
	75	13.3	8.1	11.2	6.6	10.2	5.9	10.2	5.9
	76	12.5	7.6	11.2	6.6	10.2	5.9	10.1	5.9
Crow Canyon Road/Camino Ramon Road	77	11.4	6.8	9.5	5.5	9.3	5.3	9.3	5.3
	78	15.3	9.5	10.9	6.4	11.1	6.6	11.1	6.6
	79	16.8	10.6	11.7	7.0	11.8	7.1	11.8	7.1
	80	12.7	7.7	10.2	5.9	10.2	5.9	10.2	5.9
Crow Canyon Road/I-680	81	19.3	12.3	13.2	8.0	13.1	8.0	13.1	8.0
	82	24.3	15.8	12.9	7.8	12.3	7.4	12.3	7.4
	83	25.1	16.4	14.0	8.6	13.5	8.3	13.4	8.2
	84	22.1	14.3	12.6	7.6	12.2	7.3	12.2	7.3

Table 7-3. Continued

Receptor Location	Receptor Number	Existing Conditions		2010 No-Project Conditions		2010 With-Project Conditions		2010 With-Project Conditions (Mitigated)	
		1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level
Sycamore Valley Boulevard/Camino Tassajara Road	85	10.5	6.1	8.3	4.6	10.5	6.1	8.3	4.6
	86	10.1	5.9	7.8	4.3	8.4	4.7	7.8	4.3
	87	10.4	6.1	8.4	4.7	10.3	6.0	9.0	5.1
	88	10.9	6.4	8.5	4.8	9.8	5.7	8.7	4.9
Sycamore Valley Boulevard/I-680	89	16.7	10.5	10.5	6.1	10.3	6.0	10.2	5.9
	90	17.4	11.0	10.4	6.1	10.1	5.9	10.1	5.9
	91	15.3	9.5	9.3	5.3	9.1	5.2	9.1	5.2
	92	22.0	14.2	12.3	7.4	11.8	7.1	11.8	7.1
Camino Tassajara Road/I-680	93	18.3	11.6	10.6	6.2	10.3	6.0	10.2	5.9
	94	27.0	17.7	13.3	8.1	12.9	7.8	12.9	7.8
	95	21.4	13.8	11.7	7.0	11.3	6.7	11.3	6.7
	96	20.0	12.8	11.1	6.6	11.4	6.8	11.3	6.7

Notes: CO = carbon monoxide.  
ppm = parts per million.

Federal and state 8-hour standards for CO = 9 ppm.

Federal 1-hour standard for CO = 35 ppm.

State 1-hour standard for CO = 20 ppm.

8-hour average values = .70 x peak 1-hour values.

CO concentrations include a "background" CO level of 6 ppm for 1-hour average and 3 ppm for 8-hour average.

All concentrations were modeled using the California Department of Transportation CALINE4 model.

Source: Jones & Stokes Associates.



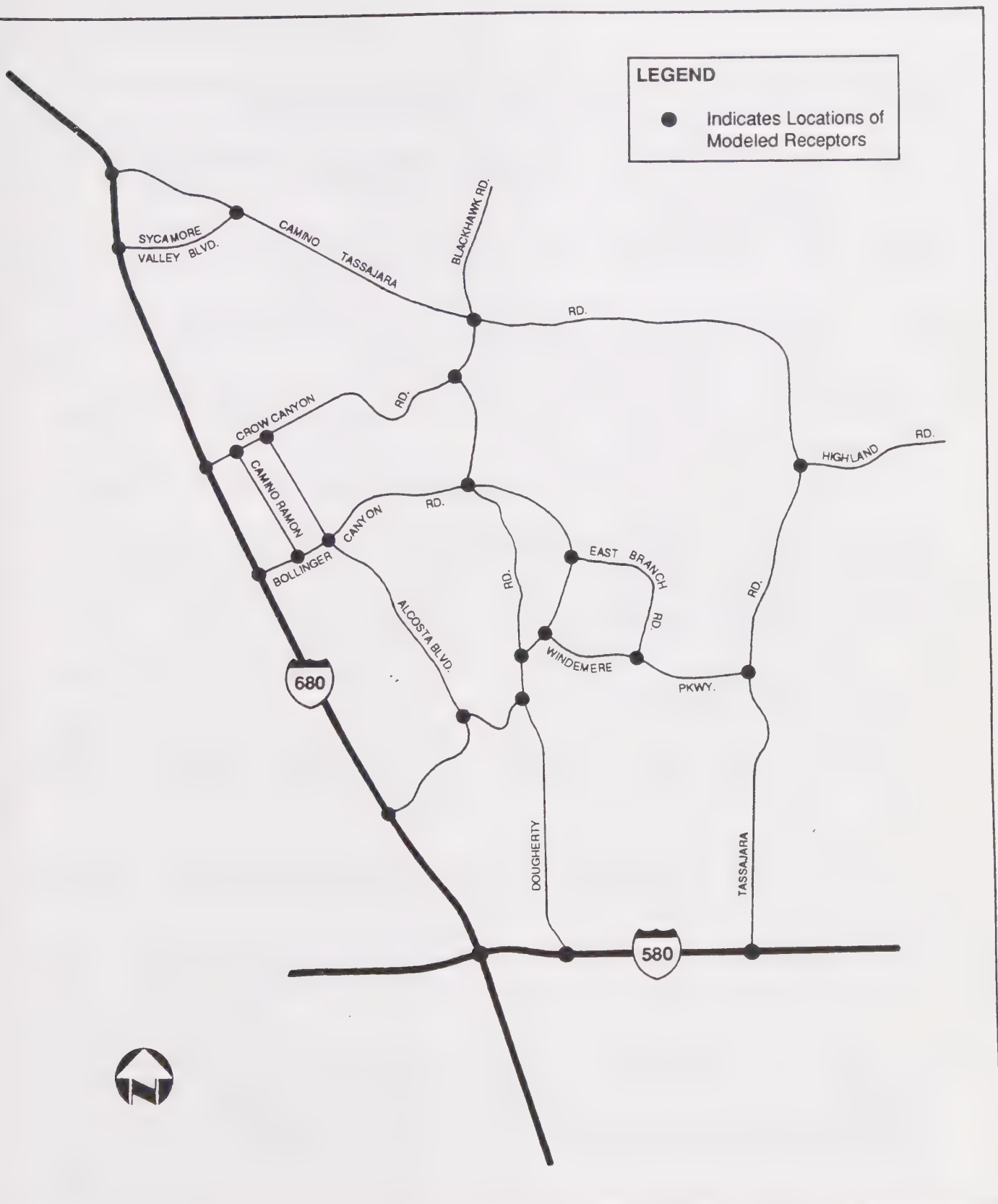


Figure 7-1. Roadway and Receptor Network Used in Air Quality Modeling Analysis

The California Clean Air Act establishes numerous requirements for an acceptable air quality attainment plan. Following are the major required elements:

- an analysis of present and projected maximum pollution concentrations, the distribution and frequency of violations, and pollutant transport contributions to air quality problems;
- emission forecasts based on expected industrial, vehicular, and population growth;
- a stationary source permit program requiring no net increase in emissions from new or modified stationary sources that have the potential to emit 25 tons or more per year of any nonattainment pollutant;
- procedures to require reasonably available control technology for all existing stationary sources;
- programs to implement reasonably available transportation control measures;
- provisions to develop area source and indirect source control programs;
- provisions for tracking and reporting emission reductions and ambient air quality improvements actually achieved by the plan;
- public education programs to promote emission reductions from transportation and areawide sources;
- a demonstration that the plan provides for districtwide emission reductions of 5% per year averaged over consecutive 3-year periods, unless an alternative measure of progress is approved by the California Air Resources Board;
- contingency measures to be implemented upon a finding by the California Air Resources Board that the district is failing to achieve interim goals or maintain adequate progress toward attainment; and
- an assessment of the cost effectiveness of proposed control measures and a ranking of measures from least cost effective to most cost effective.

The features noted above are basic requirements for areas that currently exceed State air quality standards but that in the absence of pollutant transport from upwind areas, would achieve the standards by the end of 1994. The following additional requirements are imposed on areas that in the absence of pollutant transport from upwind areas would expect to achieve air quality standards after 1994 but before the end of 1997:

- a stationary source permit program requiring no net increase in emissions from all new or modified stationary sources of any nonattainment pollutant;

- procedures to require best available retrofit control technology for existing stationary sources; and
- a program of transportation control measures to substantially reduce the rate of increase in passenger vehicle trips and miles traveled per trip.

The following requirements apply to areas that in the absence of pollutant transport from upwind areas would not expect to achieve State air quality standards until after 1997:

- a program of transportation control measures to achieve an average vehicle occupancy of 1.5 or more during weekday commute hours by 1999;
- a program of transportation control measures to achieve no net increase in vehicle emissions after 1997;
- measures to achieve the use of a significant number of low-emission vehicles by operators of motor vehicle fleets; and
- measures sufficient to reduce overall population exposure to ambient pollutant levels in excess of the standard by at least 25% by December 31, 1994; at least 40% by December 31, 1997; and at least 50% by December 31, 2000. The average level of exposure experienced during 1986 through 1988 is used as the baseline period for determining required exposure reductions.

The air quality attainment plan requirements established by the California Clean Air Act are based on the severity of air pollution problems caused by locally generated emissions. Upwind air pollution control districts are required to establish and implement emission control programs commensurate with the extent of pollutant transport to downwind districts.

Air pollution problems in the San Francisco Bay Area are primarily the result of locally generated emissions. However, the San Francisco Bay Area has been identified as a source of ozone precursor emissions that occasionally contribute to air quality problems in the Monterey Bay area, the northern San Joaquin Valley, and the southern Sacramento Valley. Consequently, the air quality planning for the San Francisco Bay Area must not only correct local air pollution problems but must also reduce the area's impact on downwind air basins.

The Bay Area Air Quality Management District (BAAQMD) has recently released a draft air quality management plan (the "Clean Air Plan" or "CAP") prepared in cooperation with the Association of Bay Area Governments and the Metropolitan Transportation Commission. The draft plan, which was approved by the BAAQMD Board of Directors on October 30, 1991, addresses CO and ozone problems in the Bay Area. The California Air Resources Board must now approve the BAAQMD plan before it becomes final.



Although the BAAQMD plan projects attainment of Federal and State CO standards by 1994 for most portions of the Bay Area, occasional violations of the CO standards may continue to occur in the San Jose and Vallejo areas. The plan projects continued violations of the State ozone standard beyond 1997, thus classifying the Bay Area as a "severe" ozone nonattainment area. The following programs and policies are taken from the BAAQMD clean air plan and are the most applicable to the Dougherty Valley Draft Specific Plan:

- implement procedures to prevent any net increase in stationary source emissions,
- design programs to reduce the rate of increase in vehicle trips and vehicle miles traveled per trip,
- implement programs to prevent any net increase in vehicle emissions after 1997,
- provide for higher-density zoning near transit corridors,
- modify signal timing to improve arterial traffic movement,
- expand and improve the bike-lane system,
- provide bus feeder service to BART and other transportation infrastructures, and
- provide carpool incentives for employers and employees.

## **IMPACTS AND MITIGATION MEASURES ASSOCIATED WITH THE SPECIFIC PLAN**

### **Methodology and Significance Criteria**

#### **Methodology**

**Construction Impacts.** Implementing the project would result in temporary emissions of PM<sub>10</sub>, NO<sub>x</sub>, ROG, and CO during construction. These activities have the potential for affecting residents of existing nearby homes to the west and south of the planning area. Construction equipment and vehicles generate dust during clearing, excavation, and grading operations. Vehicle traffic on unpaved surfaces and wind blowing over exposed surfaces also generate dust. Construction equipment powered by internal combustion engines would generate emissions of ROG, NO<sub>x</sub>, and CO.

**Carbon Monoxide Modeling.** The ambient air quality effects of vehicle traffic emissions were evaluated using the CALINE4 dispersion model (Hatano et al. 1986). CALINE4 is a Gaussian dispersion model designed to evaluate potential air quality impacts of vehicle traffic.

The CALINE4 air quality analyses estimated CO concentrations at locations (receptors) where people would be exposed to CO. For this study, receptors were located at 24 intersections, with four per intersection. Figure 7-1 shows the roadways that were modeled and the intersections where receptors were located.

The air quality analyses used peak-hour traffic data from Chapter 6, "Circulation". The air quality analyses assumed that traffic consisted of 91% light-duty vehicles, 2% medium-duty trucks, 6% heavy-duty trucks, and 1% motorcycles. Vehicles were assumed to be operating in 36% cold-start mode, 20% hot-start mode, and 44% hot-stabilized mode. Air temperatures were assumed to be 40°F.

The meteorological conditions assumed a worst-case wind speed of 0.5 meter per second, a stability class G, and a mixing height of 1,000 meters. Thirty-six wind angles were modeled (10-360 degrees by 10-degree increments) to determine a worst-case concentration for each receptor.

A background CO concentration of 6 parts per million (ppm) for the 1-hour values and 3 ppm for the 8-hour values were chosen. These values were chosen based on recommendations in Air Quality and Urban Development, Guidelines for Assessing Impacts of Projects and Plans (Bay Area Air Quality Management District 1991). An 8-hour persistence factor of 70% was used.

Modeling results for each receptor represent total CO contributions from a network of roadway segments. (CALINE4 evaluates total CO concentrations that result from many pieces of a roadway system and estimates what those resulting concentrations would be at receptors in the vicinity of the roadway system.)

**Ozone Precursor and PM<sub>10</sub> Emissions.** The estimates of ROG, NO<sub>x</sub>, and PM<sub>10</sub> emissions from mobile sources were made using a program called URBEMIS3. URBEMIS3 estimates the traffic-related emissions resulting from various land use development projects. For this project, the land use data were obtained from the DVSP.

URBEMIS3 contains default values for much of the information needed to calculate emissions. However, project-specific, user-supplied information can also be used when it is available. For this study, default values for all input parameters except trip generation, analysis year, and air basin were used.

Trip generation data were obtained from the Trip Generation Manual (Institute of Transportation Engineers 1991). The analysis year is 2010 and the temperature assumed in the model is 70°F.

Estimates of ROG, NO<sub>x</sub>, and PM<sub>10</sub> emissions produced by residential stationary sources were estimated using emission factors produced by BAAQMD (1985). These emissions include the following types of sources: domestic home heating, fireplaces and woodstoves, house paints, lawnmowers and other domestic fuel-burning engines, aerosols, and other volatile consumer products. These estimates are also shown in Table 7-4.

Table 7-4. Project-Related Emissions in Pounds per Day

Land Use	ROG	NO <sub>x</sub>	PM <sub>10</sub>
<b>Mobile Sources</b>			
Single-family housing	285.1	651.2	70.5
Multifamily housing	211.3	482.1	52.1
Neighborhood retail	73.5	190.1	82.4
Community retail	102.9	266.3	115.4
Service offices	5.1	12.9	43.0
Offices	27.0	66.7	195.4
Elementary schools	17.2	43.3	136.4
Middle schools	9.0	22.6	77.5
High schools	18.8	47.1	161.5
Community college	90.2	226.1	775.3
Parks	2.8	7.3	3.2
Religious institutions	3.0	7.7	6.8
Golf course	4.8	12.5	11.0
Public use	<u>2.5</u>	<u>6.4</u>	<u>5.7</u>
Subtotal	853.2	2,042.3	1,736.2
<b>Stationary Sources</b>			
Residential and residential-related	<u>1,316.0</u>	<u>259.0</u>	<u>84.0</u>
Total	2,169.2	2,301.3	1,820.2

ROG = reactive organic gases.

NO<sub>x</sub> = oxides of nitrogen.

PM<sub>10</sub> = particulate matter 10 microns or less in diameter.

Source: Bay Area Air Quality Management District 1985.



## Significance Criteria

According to Section 15064(e) and Appendix G of the State CEQA Guidelines, a project will normally have a significant impact if it would:

- violate any ambient air quality standard;
- contribute substantially to an existing or projected air quality violation;
- expose sensitive receptors to substantial pollutant concentrations;
- result in substantial air emissions or deterioration of air quality;
- create objectionable odors; or
- alter air movement, moisture, or temperature or result in any change in climate, either locally or regionally.

## Key Assumptions

The following assumptions were used in determining project-related air quality impacts:

- emissions exceeding the BAAQMD's proposed NSR threshold of 1 pound per day of PM<sub>10</sub>, NO<sub>x</sub>, or ROG were considered a significant air quality impact and
- background CO concentrations of 6 ppm (1-hour average) and 3 ppm (8-hour average) were assumed for all years.

## Project-Related Impacts

### Impact: Increased Emission of PM<sub>10</sub> Dust

Table 7-5 shows estimates of construction emissions that would be produced by grading and earth-moving activities. These estimates assume that a maximum of 10 acres would be actively disturbed during a worst-case day. The actual amount of disturbance may be higher or lower than this estimate, depending on market conditions. Emissions of PM<sub>10</sub> would equal 352 pounds per day, assuming a dust control program effectiveness of 50% and that 60% of the dust is PM<sub>10</sub>.

This impact is considered significant because it would result in emissions of PM<sub>10</sub> dust during project construction that would exceed the PM<sub>10</sub> emission threshold of 1 pound per day.

Table 7-5. Typical Dougherty Valley Construction Emissions during  
Major Site-Disturbance Activities (pounds per day)

Emission Source	TOG	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>
Construction-vehicle exhaust emissions	23	144	289	22	28
PM <sub>10</sub> fraction of fugitive dust	<u>0</u>	<u>0</u>	<u>0</u>	<u>330</u>	<u>0</u>
Total daily emissions	23	144	289	352	28

Notes: TOG = total organic compounds.  
NO<sub>x</sub> = oxides of nitrogen.  
CO = carbon monoxide.  
PM<sub>10</sub> = particulate matter 10 microns or less in diameter.  
SO<sub>x</sub> = sulfur oxides.

Source: U.S. Environmental Protection Agency 1985 (AP-42, Volumes I and II).

## **Mitigation Measures**

- 7.1: The project proponents should use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site and increase watering frequency whenever winds exceed 15 mph.
- 7.2: The project proponents should spray all dirt stock-pile areas daily as needed.
- 7.3: The project proponents should implement permanent dust control measures identified in the approved project revegetation and landscape plans as soon as possible following completion of any soil-disturbing activities.
- 7.4: Exposed ground areas that are planned to be reworked more than 1 month after initial grading should be sown with a fast-germinating native grass seed and watered until vegetation is established.
- 7.5: The project proponents should stabilize all disturbed soil areas not subject to revegetation using approved chemical soil binders, jute netting, or other methods approved in advance by the BAAQMD.
- 7.6: Construction vehicle speeds should not exceed 25 mph on any unpaved surface at the construction site.

These partial mitigation measures would reduce this impact, but not to a less-than-significant level because they would not reduce construction-related emissions of PM<sub>10</sub> to less than 1 pound per day. Therefore, this impact can only be partially mitigated and is considered significant and unavoidable.

## **Impact: Generation of Construction-Related Ozone Precursor Emissions**

Construction emissions would generate ozone precursor emissions from fossil fuel combustion of heavy-duty and light-duty construction equipment. Mitigation measures would be required because the total emissions from earth moving would equal 289 pounds of NO<sub>x</sub> per day.

This impact is considered significant because project construction would generate ozone precursor emissions that exceed the BAAQMD's New Source Review (NSR) emission threshold of 1 pound per day.

## **Mitigation Measures**

- 7.7: The project proponents should electrify equipment where practical.



- 7.8: The project proponents should maintain and operate equipment according to manufacturer's specifications, except as required by mitigation measure 7.9.
- 7.9: The project proponents should implement engine timing retard (4 degrees) for diesel-powered equipment or as recommended by manufacturer.
- 7.10: The project proponents should install catalytic converters on gasoline-powered equipment where required by law.
- 7.11: The project proponents should substitute gasoline-powered for diesel-powered equipment where feasible.

These mitigation measures would substantially reduce this impact, but not to a less-than-significant level because they would not reduce construction-related ozone precursor emissions to less than 1 pound of NO<sub>x</sub> per day. Therefore, this impact can only be partially mitigated and is considered significant and unavoidable. However, this impact will only be present during construction activities.

#### **Impact: Violation of Carbon Monoxide Emission Standards**

The project-specific CO impacts are shown by comparing the 2010 with-project and 2010 no-project modeling results (Table 7-3). A significant impact occurs when the proposed project would cause or contribute to exceedances of the CO ambient standards, as described by the following two conditions:

- the no-project concentration is less than the ambient standard while the with-project concentration (at the same receptor) exceeds the ambient standard or
- the no-project concentration exceeds the ambient standard while the with-project concentration (at the same receptor) exceeds the no-project concentration.

The proposed project would violate these criteria at six of the 96 receptors. These six receptors are located at four intersections: Tassagara Road/I-580, Dougherty Road/I-580, Crow Canyon Road/Dougherty Road, and Bollinger Canyon Road/I-680.

This impact is considered significant because the project would cause the violation of the CO ambient standard or worsen projected CO violations.

#### **Mitigation Measures**

- 7.12: The project proponents should implement the intersection measures detailed in Chapter 6, "Circulation".

Implementing mitigation measure 7.12 would result in the proposed project (with mitigation) violating the CO significance criteria at three of the 96 receptors as

compared to six of 96 receptors for the proposed project without mitigation. These three receptors are located at two intersections: Dougherty Road/I-580 and Crow Canyon Road/Dougherty Road.

- 7.13: The project proponents should implement the transportation control measures contained in the Bay Area Air Quality Management District's Clean Air Plan.
- 7.14: The County should modify signal timing to improve arterial traffic movement.
- 7.15: The project proponents should provide bus feeder service to BART and other transportation infrastructure.

Implementing mitigation measures 7.12 through 7.15 would substantially reduce this impact, but not to a less-than-significant level because ambient CO levels would still exceed State and Federal standards at some receptor locations. Therefore, this impact can only be partially mitigated and is considered significant and unavoidable.

#### **Impact: Increase of Ozone Precursor Emissions**

As shown in Table 7-4, total daily combined emissions from motor vehicles and household stationary sources equal 2,169.2 pounds of ROG, 2,301.3 pounds of NO<sub>x</sub>, and 1,820.2 pounds of PM<sub>10</sub>. This impact is considered significant because these levels of emissions are above the BAAQMD NSR threshold of 1 pound per day.

#### **Mitigation Measures**

- 7.12 through 7.15: These measures are described above.

Implementing mitigation measures 7.12 through 7.15 would substantially reduce traffic congestion and would, therefore, substantially reduce the mobile source ozone precursor emissions. However, this reduction would not be to a less-than-significant level. Therefore, this impact can only be partially mitigated and is significant and unavoidable.

### **Cumulative Impacts**

#### **Impact: Increase of Carbon Monoxide Emissions**

The results of modeling cumulative with-project traffic conditions are shown in Table 7-6. The State 1-hour CO standard of 20 ppm was not exceeded at any of the 96 receptor locations analyzed. The State and Federal 8-hour standard of 9 ppm was exceeded at 22 of the receptor locations. The highest predicted 1-hour and 8-hour CO levels would

Table 7-6. Predicted Worst-Case Carbon Monoxide Levels (in parts per million) - Existing Conditions vs. Cumulative Conditions

Receptor Location	Receptor Number	Existing Conditions		Cumulative No-Project Conditions		Cumulative With-Project Conditions		Cumulative Conditions (Mitigated)	
		1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level
Tassajara Road/I-580	1	13.9	8.5	12.4	7.5	14.7	9.1	14.7	9.1
	2	14.3	8.8	12.2	7.3	14.9	9.2	14.9	9.2
	3	15.0	9.3	14.2	8.7	16.5	10.4	16.5	10.4
	4	14.9	9.2	14.4	8.9	17.0	10.7	17.0	10.7
Tassajara Road/Windemere Parkway	5	8.9	5.0	10.4	6.1	13.0	7.9	13.0	7.9
	6	9.1	5.2	8.5	4.8	13.2	8.0	13.2	8.0
	7	9.1	5.2	8.4	4.7	12.4	7.5	12.4	7.5
	8	8.9	5.0	9.6	5.5	13.7	8.4	13.7	8.4
Tassajara Road/Highland Road	9	8.0	4.4	7.5	4.1	8.0	4.4	8.0	4.4
	10	8.1	4.5	7.8	4.3	8.4	4.7	8.4	4.7
	11	8.4	4.7	7.8	4.3	8.3	4.6	8.3	4.6
	12	8.1	4.5	7.7	4.2	7.9	4.3	7.9	4.3
Dougherty Road/I-580	13	20.2	12.9	13.1	8.0	14.9	9.2	14.9	9.2
	14	27.1	17.8	15.1	9.4	15.9	9.9	15.9	9.9
	15	20.5	13.2	13.1	8.0	13.8	8.5	13.8	8.5
	16	23.3	15.1	14.2	8.7	14.5	9.0	14.5	9.0
I-680/I-580	17	19.5	12.5	11.7	7.0	12.1	7.3	12.1	7.3
	18	29.9	19.7	16.0	10.0	17.0	10.7	17.0	10.7
	19	19.1	12.2	12.0	7.2	12.5	7.6	12.5	7.6
	20	28.5	18.8	17.6	11.1	18.5	11.8	18.5	11.8
Alcosta Boulevard/Old Ranch Road	21	9.8	5.7	7.6	4.1	8.1	4.5	8.1	4.5
	22	10.6	6.2	7.9	4.3	8.2	4.5	8.1	4.5
	23	10.9	6.4	7.9	4.3	8.2	4.5	8.2	4.5
	24	9.8	5.7	7.6	4.1	8.1	4.5	8.1	4.5
Alcosta Boulevard/I-680	25	21.2	13.6	11.9	7.1	12.6	7.6	12.6	7.6
	26	20.1	12.9	11.2	6.6	11.8	7.1	11.8	7.1
	27	20.6	13.2	11.3	6.7	11.8	7.1	11.8	7.1



Receptor Location	Receptor Number	Existing Conditions		2010 No-Project Conditions		2010 With-Project Conditions		2010 With-Project Conditions (Mitigated)	
		1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level
Windemere Parkway/East Branch Road	28	22.0	14.2	12.2	7.3	13.0	7.9	13.0	7.9
	29	8.9	5.0	7.2	3.8	8.3	4.6	8.3	4.6
	30	8.9	5.0	7.2	3.8	8.6	4.8	8.6	4.8
	31	8.9	5.0	7.2	3.8	8.5	4.8	8.5	4.8
	32	8.9	5.0	7.2	3.8	8.9	5.0	8.9	5.0
Dougherty Road/Old Ranch Road	33	9.4	5.4	8.0	4.4	9.4	5.4	9.4	5.4
	34	9.5	5.5	7.7	4.2	9.6	5.5	9.6	5.5
	35	9.6	5.5	7.6	4.1	9.7	5.6	9.7	5.6
	36	9.3	5.3	8.2	4.5	9.8	5.7	9.8	5.7
South Dougherty Road/Bollinger Canyon Road	37	9.1	5.2	7.8	4.3	10.0	5.8	10.0	5.8
	38	9.2	5.2	7.6	4.1	9.2	5.2	9.2	5.2
	39	9.3	5.3	7.7	4.2	9.9	5.7	9.9	5.7
	40	9.1	5.2	7.7	4.2	9.8	5.7	9.8	5.7
Bollinger Canyon Road/Windmere Parkway	41	9.1	5.2	7.3	3.9	8.7	4.9	8.7	4.9
	42	9.1	5.2	7.3	3.9	8.3	4.6	8.3	4.6
	43	9.1	5.2	7.3	3.9	8.3	4.6	8.3	4.6
	44	9.1	5.2	7.3	3.9	8.6	4.8	8.6	4.8
Bollinger Canyon Road/East Branch Road	45	9.0	5.1	7.3	3.9	9.2	5.2	9.2	5.2
	46	9.0	5.1	7.3	3.9	8.9	5.0	8.9	5.0
	47	9.0	5.1	7.3	3.9	8.5	4.8	8.5	4.8
	48	9.0	5.1	7.3	3.9	8.7	4.9	8.7	4.9
North Dougherty Road/Bollinger Canyon Road	49	9.3	5.3	7.6	4.1	12.2	7.3	11.7	7.0
	50	9.2	5.2	8.5	4.8	13.8	8.5	13.6	8.3
	51	9.6	5.5	8.7	4.9	15.5	9.7	14.7	9.1
	52	9.4	5.4	8.1	4.5	13.1	8.0	12.8	7.8
Crow Canyon Road/Dougherty Road	53	10.0	5.8	9.2	5.2	13.9	8.5	13.9	8.5
	54	11.0	6.5	10.6	6.2	19.6	12.5	19.6	12.5

Table 7-6. Continued

Receptor Location	Receptor Number	Existing Conditions		2010 No-Project Conditions		2010 With-Project Conditions		2010 With-Project Conditions (Mitigated)	
		1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level
Camino Tassajara Road/Crow Canyon Road	55	12.3	7.4	11.1	6.6	14.6	9.0	14.6	9.0
	56	9.9	5.7	9.7	5.6	17.8	11.3	17.8	11.3
	57	9.2	5.2	11.0	6.5	12.2	7.3	12.2	7.3
	58	10.5	6.2	10.9	6.4	14.5	9.0	14.5	9.0
	59	10.3	6.0	12.4	7.5	15.9	9.9	15.9	9.9
Bollinger Canyon Road/Alcosta Boulevard	60	9.8	5.7	11.5	6.9	15.3	9.5	15.3	9.5
	61	12.0	7.2	10.0	5.8	11.2	6.6	10.8	6.4
	62	14.0	8.6	11.5	6.9	13.0	7.9	11.6	6.9
	63	12.3	7.4	10.7	6.3	12.4	7.5	10.8	6.4
	64	11.6	6.9	9.8	5.7	11.0	6.5	10.1	5.9
Bollinger Canyon Road/Camino Ramon Road	65	13.1	8.0	11.2	6.6	11.9	7.1	11.9	7.1
	66	14.3	8.8	11.2	6.6	11.5	6.9	11.5	6.9
	67	12.9	7.8	12.2	7.3	12.8	7.8	12.8	7.8
	68	12.1	7.3	11.6	6.9	12.2	7.3	12.2	7.3
Bollinger Canyon Road/I-680	69	25.1	16.4	13.9	8.5	15.1	9.4	15.0	9.3
	70	24.8	16.2	14.4	8.9	15.1	9.4	15.1	9.4
	71	22.4	14.5	14.5	9.0	15.2	9.4	15.2	9.4
	72	27.5	18.1	14.4	8.9	15.1	9.4	15.1	9.4
Crow Canyon Road/Alcosta Boulevard	73	11.3	6.7	10.6	6.2	11.6	6.9	11.6	6.9
	74	12.0	7.2	12.4	7.5	12.8	7.8	12.8	7.8
	75	13.3	8.1	11.2	6.6	12.0	7.2	12.0	7.2
	76	12.5	7.6	11.0	6.5	11.7	7.0	11.6	6.9
Crow Canyon Road/Camino Ramon Road	77	11.4	6.8	9.4	5.4	9.9	5.7	9.9	5.7
	78	15.3	9.5	10.9	6.4	11.2	6.6	11.2	6.6
	79	16.8	10.6	11.7	7.0	12.3	7.4	12.3	7.4
	80	12.7	7.7	10.3	6.0	10.9	6.4	10.9	6.4

Receptor Location	Receptor Number	Existing Conditions		2010 No-Project Conditions		2010 With-Project Conditions		2010 With-Project Conditions (Mitigated)	
		1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level	1-Hour CO Level	8-Hour CO Level
Crow Canyon Road/I-680	81	19.3	12.3	13.2	8.0	13.8	8.5	13.8	8.5
	82	24.3	15.8	12.8	7.8	13.6	8.3	13.6	8.3
	83	25.1	16.4	13.9	8.5	14.7	9.1	14.7	9.1
	84	22.1	14.3	12.5	7.6	13.3	8.1	13.3	8.1
Sycamore Valley Boulevard/Camino Tassajara Road	85	10.5	6.2	8.2	4.5	11.2	6.6	11.2	6.6
	86	10.1	5.9	7.7	4.2	9.3	5.3	9.3	5.3
	87	10.4	6.1	8.3	4.6	11.8	7.1	11.8	7.1
	88	10.9	6.4	8.3	4.6	10.5	6.2	10.5	6.2
Sycamore Valley Boulevard/I-680	89	16.7	10.5	10.4	6.1	11.1	6.6	11.0	6.5
	90	17.4	11.0	10.4	6.1	11.4	6.8	11.4	6.8
	91	15.3	9.5	9.4	5.4	9.9	5.7	9.9	5.7
	92	22.0	14.2	12.3	7.4	13.1	8.0	13.1	8.0
Camino Tassajara Road/I-680	93	18.3	11.6	10.5	6.2	11.3	6.7	11.3	6.7
	94	27.0	17.7	13.3	8.1	14.5	9.0	14.5	9.0
	95	21.4	13.8	11.7	7.0	12.6	7.6	12.6	7.6
	96	20.0	12.8	11.1	6.6	12.3	7.4	12.3	7.4

Notes: Federal and state 8-hour standards for CO = 9 ppm.

Federal 1-hour standard for CO = 35 ppm.

State 1-hour standard for CO = 20 ppm.

8-hour average values = .70 x peak 1-hour values.

CO concentrations include a "background" CO level of 6 ppm for 1-hour average and 3 ppm for 8-hour average.



be 19.6 ppm and 12.5 ppm, respectively, both at the intersection of Crow Canyon Road and Dougherty Road.

In comparison, under no-project conditions, the State and Federal 8-hour standard was exceeded at four receptor locations. The highest predicted 1-hour and 8-hour CO levels would be 17.6 ppm and 11.1 ppm respectively, both at the interchange of I-680 and I-580.

This impact is considered significant because ambient CO levels would exceed State and Federal standards, and the levels are above standards at more locations.

### **Mitigation Measures**

- 7.12 through 7.15: These measures are described above.

Implementing mitigation measures 7.12 through 7.15 would substantially reduce this impact, but not to a less-than-significant level because they would not eliminate exceedances of CO concentrations at all sensitive receptors. Therefore, this impact can only be partially mitigated and is considered significant and unavoidable.

### **Impact: Increase of Ozone Precursor Emissions**

As shown in Table 7-4, total daily combined emissions from motor vehicles and household stationary sources equal 2,169.2 pounds of ROG, 2,301.3 pounds of NO<sub>x</sub>, and 1,820.2 pounds of PM<sub>10</sub>. These emissions are associated only with the DVSP development. When combined with emissions from other developments in Contra Costa County and throughout the Bay Area, cumulative emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> would also be significant.

### **Mitigation Measures**

- 7.16: The project proponents should revise the DVSP to include signal timing as measures to improve traffic flow.
- 7.17: The project proponents should revise the DVSP to encourage bus feeder service to BART to be provided by a local bus provider.
- 7.12 through 7.15: These measures are described above.

Implementing mitigation measures 7.12 through 7.17 would substantially reduce this impact, but not to a less-than-significant level because they would not eliminate a cumulative increase of ozone precursor emissions above the BAAQMD NSR threshold of 1 lb/day. Therefore, this impact can only be partially mitigated and is considered significant and unavoidable.

## Chapter 8. Noise

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### BACKGROUND INFORMATION

#### Terminology

Sound travels through the air as waves of minute air pressure fluctuations caused by some type of vibration. In general, sound waves travel away from the noise source as an expanding spherical surface. The energy contained in a sound wave is consequently spread over an increasing area as it travels away from the source. This results in a decrease in loudness at greater distances from the noise source.

Sound level meters measure the actual pressure fluctuations caused by sound waves, with separate measurements made for different sound frequency ranges. These measurements are reported in a logarithmic decibel (dB) scale. Most sounds consist of a broad range of sound frequencies. Because the human ear is not equally sensitive to all frequencies, several different frequency-weighting schemes have been used to develop composite dB scales that approximate the way the human ear responds to noise levels. The A-weighted dB scale (dBA) is the most widely used for this purpose. The human response to A-weighted noise levels from various sources is summarized in Table 8-1.

Varying noise levels are often described in terms of the equivalent constant dB level. Noise level equivalents ( $L_{eq}$ ) are used to develop single-value descriptions of average noise exposure over various periods of time. Such average noise exposure ratings often include additional weighting factors for annoyance potential attributable to time of day or other considerations. The  $L_{eq}$  data used for these average noise exposure descriptors are generally based on A-weighted sound level measurements.

Average noise exposure over a 24-hour period is often presented as a day-night average sound level ( $L_{dn}$ ).  $L_{dn}$  values are calculated from hourly  $L_{eq}$  values, with the  $L_{eq}$  values for the nighttime period (10 p.m.-7 a.m.) increased by 10 dB to reflect the greater disturbance potential from nighttime noises.

The community noise equivalent level (CNEL) is also used to characterize average noise levels over a 24-hour period, with weighting factors for evening and nighttime noise levels.  $L_{eq}$  values for the evening period (7 p.m.-10 p.m.) are increased by 5 dB while  $L_{eq}$  values for the nighttime period (10 p.m.-7 a.m.) are increased by 10 dB. Except in unusual situations, the CNEL descriptor will be within 1.5 dB of the  $L_{dn}$  descriptor for the same set of noise measurements.

Table 8-1. Weighted Sound Levels and Human Response

Sound Source	dB(A)*	Response
Carrier deck jet operation	140	
Limit of amplified speech	130	Painfully loud
Jet takeoff (200 feet)	120	Threshold of feeling and pain
Auto horn (3 feet)		
Riveting machine	110	
Jet takeoff (2000 feet)		
Shout (6 inches)	100	Very annoying
New York subway		
Heavy truck (50 feet)	90	Hearing damage (8 hour exposure)
Pneumatic drill (50 feet)		
Freight train (50 feet)	80	Annoying
Garbage disposal in home		
Freeway traffic (50 feet)	70	Telephone use difficult
Air conditioning unit (20 feet)	60	
Light auto traffic		
Speech in normal voice (15 feet)	50	Quiet
In-house movement of people, no TV or radio	40	
Soft whisper (15 feet)	30	Very quiet
Recording studio	20	
	10	Very faint
	0	Threshold of hearing

\* Typical A-weighted sound levels. The "A" scale approximates the frequency response of the human ear.



## **Working with Decibel Values**

The nature of dB scales is such that individual dB ratings for different noise sources cannot be added directly to give the dB rating of the combination of these sources. Two noise sources producing equal dB ratings at a given location will produce a composite noise level 3 dB greater than either sound alone. When two noise sources differ by 10 dB, the composite noise level will be only 0.4 dB greater than the louder source alone.

Most people have difficulty distinguishing the louder of two noise sources that differ by less than 1.5-2 dB. Except in controlled laboratory conditions, an increase of less than 1 dB cannot be perceived. Outside laboratory conditions, an increase in noise of 3 dB is typically considered to be the threshold of perceptibility. An increase of at least 5 dBA can be described as being a distinctly noticeable increase and is typically required before a noticeable change in community response to noise can be expected. For this reason, an increase in noise of 5 dB is often used as the threshold for a significant noise increase. A 10-dB increase in noise level is generally perceived as a doubling in loudness.

When distance is the only factor considered, sound levels from an isolated noise source will typically decrease by about 6 dB for every doubling of distance away from the noise source. When the noise source is essentially a continuous line (e.g., vehicle traffic on a highway), noise levels decrease by about 3 dB for every doubling of distance. An attenuation rate of 4.5 dB per doubling of distance is often used for traffic noise when the intervening ground between the roadway and the receptor is acoustically "soft" (e.g., the ground is covered with grass or vegetation).

## **Guidelines for Interpreting Noise Levels**

Various State, local, and Federal agencies have developed guidelines for evaluating land use compatibility under different noise level ranges.

### **State Agency Guidelines**

In 1987, DHS published guidelines for the noise element of local general plans. These guidelines include a noise level/land use compatibility chart that categorizes various outdoor  $L_{dn}$  ranges into up to four compatibility categories (normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable), depending on land use. For many land uses, the chart shows overlapping  $L_{dn}$  ranges for two or more compatibility categories.

The noise element guidelines chart identifies the normally acceptable range for low-density residential uses as less than 60 dB and the conditionally acceptable range as 55-70 dB. The normally acceptable range for high-density residential uses is identified as  $L_{dn}$  values below 65 dB, and the conditionally acceptable range is identified as 60-70 dB. For educational and medical facilities,  $L_{dn}$  values below 70 dB are considered normally

acceptable, and  $L_{dn}$  values of 60-70 dB are considered conditionally acceptable. For office and commercial land uses,  $L_{dn}$  values below 70 dB are considered normally acceptable, and  $L_{dn}$  values of 67.5-77.5 are categorized as conditionally acceptable.

These overlapping  $L_{dn}$  ranges are intended to indicate that local conditions (existing noise levels and community attitudes toward dominant noise sources) should be considered in evaluating land use compatibility at specific locations.

The California Department of Housing and Community Development has adopted noise insulation performance standards for new hotels, motels, and dwellings other than detached single-family structures (24 Cal. Admin. Code T25-28). These standards require that "interior CNEL with windows closed, attributable to exterior sources, shall not exceed an annual CNEL of 45 dB in any habitable room."

### **Local Agency Guidelines**

In California, cities and counties are required to adopt a noise element as part of their general plan. Cities and counties can also adopt noise control requirements within their zoning ordinances or as a separate noise ordinance.

**General Plan Noise Element Policies.** The final noise element of the Contra Costa County General Plan (1989) was developed to mitigate noise conflicts where they presently exist and to minimize future noise conflicts by adopting policies and implementation measures designed to achieve land use compatibility for proposed development. The noise element has been developed in accordance with the requirements of Section 65302(f) of the California Government Code and follows DHS's Guidelines for the Preparation and Content of Noise Elements of the General Plan.

The noise element of the Contra Costa County General Plan contains several goals and policies that are relevant to the project.

The County's general plan goals are as follows:

- To improve the overall environment in the County by reducing annoying and physically harmful levels of noise for existing and future residents and for all land uses.
- To maintain appropriate conditions in all areas of the County.
- To ensure that new developments will be constructed so as to limit the effects of exterior noise on residents.
- To recognize the economic impact of noise control and encourage an equitable distribution of these costs.
- To recognize citizen concerns regarding excessive noise levels and utilize measures through which the concerns can be identified.

Contra Costa County's general plan policies are as follows:

- New projects shall be required to meet acceptable exterior noise level standards as established in the Noise and Land Use Compatibility Guidelines. These guidelines are the same as those recommended by DHS and are shown in Figure 8-1. These guidelines should be used by the County as a guide for evaluating the compatibility of noise-sensitive projects in potentially noisy areas.
- The standard of outdoor noise levels in residential areas is an  $L_{dn}$  of 60 dB. However, an  $L_{dn}$  of 60 dB or less may not be achievable in all residential areas due to economic or aesthetic constraints.
- If trains are the primary noise source, the standard for outdoor noise in residential areas is an  $L_{dn}$  of 70 dB. A higher  $L_{dn}$  value is allowed because it is controlled by a relatively small number of train passbys that are disruptive outdoors for short periods.
- Title 24, Part 2, of the California Code of Regulations requires that new multifamily housing projects, hotels, and motels exposed to an  $L_{dn}$  of 60 dB or greater provide a detailed acoustical analysis describing how the project will provide an interior  $L_{dn}$  of 45 dB or less. The County also shall require new single-family housing projects to provide for an interior  $L_{dn}$  of 45 dB or less.
- In developing residential areas exposed to an  $L_{dn}$  value in excess of 65 dB due to single events such as airport, helicopter, or train operations, indoor noise levels resulting from these single events shall not exceed a maximum noise level of 50 dBA in bedrooms and 55 dBA in other habitable rooms.
- If an area is currently below the maximum normally acceptable noise level, an increase in noise up to the maximum should not be necessarily allowed.
- Public projects shall be designed and constructed to minimize long-term noise impacts on current residents.
- Construction activities shall be concentrated during hours that are not noise-sensitive for adjacent land uses and should be commissioned to occur during normal work hours to provide relative quiet during the more sensitive evening and early morning hours.
- Development located within 6,000 feet of the Camp Parks area shall be required to prepare a detailed acoustical analysis. The analysis shall determine if the project will be affected severely by noise and if so, what mitigation measures are available.
- Noise impacts on the natural environment, including impacts on wildlife, shall be evaluated and considered in review of development projects.



LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE L <sub>dn</sub> OR CNEL, dB					
	55	60	65	70	75	80
RESIDENTIAL - LOW DENSITY SINGLE FAMILY, DUPLEX, MOBILE HOMES						
RESIDENTIAL - MULTI. FAMILY						
TRANSIENT LODGING - MOTELS, HOTELS						
SCHOOLS, LIBRARIES, CHURCHES, HOSPITALS, NURSING HOMES						
AUDITORIUMS, CONCERT HALLS, AMPHITHEATRES						
SPORTS ARENA, OUTDOOR SPECTATOR SPORTS						
PLAYGROUNDS, NEIGHBORHOOD PARKS						
GOLF COURSES, RIDING STABLES, WATER RECREATION, CEMETERIES						
OFFICE BUILDINGS, BUSINESS COMMERCIAL AND PROFESSIONAL						
INDUSTRIAL, MANUFACTURING UTILITIES, AGRICULTURE						

### INTERPRETATION



#### NORMALLY ACCEPTABLE

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.



#### CONDITIONALLY ACCEPTABLE

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.



#### NORMALLY UNACCEPTABLE

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.



#### CLEARLY UNACCEPTABLE

New construction or development should generally not be undertaken.

Figure 8-1. Land Use Compatibility for Community Noise Environments

The noise element also contains implementation measures that relate to development review. These measures require a review and analysis of noise-related impacts as part of project development review procedures. Impacts are to be evaluated in terms of applicable Federal, State, and local codes and the potential for adverse community response based on a significant increase in existing noise levels. Mitigation measures such as site planning, architectural layout of buildings, noise barriers, and construction modifications are encouraged to minimize noise impacts of proposed development.

**Noise Performance Standards in the Zoning Ordinance.** A noise ordinance is being developed for consideration by the County's Board of Supervisors. There currently is no adopted noise ordinance (Clerk of the Board of Supervisors pers. comm.)

The Cities of Danville and San Ramon use the same noise compatibility criteria as Contra Costa County.

### **Federal Agency Guidelines**

**U.S. Environmental Protection Agency.** The Federal Noise Control Act of 1972 (Public Law 92-574) established a requirement that all Federal agencies must administer their programs to promote an environment free of noise that jeopardizes public health or welfare. The U.S. Environmental Protection Agency (EPA) was given the responsibility to:

- provide information to the public regarding identifiable effects of noise on public health or welfare,
- publish information on the levels of environmental noise that will protect the public health and welfare with an adequate margin of safety,
- coordinate Federal research and activities related to noise control, and
- establish Federal noise emission standards for selected products distributed in interstate commerce.

The Federal Noise Control Act also directed that all Federal agencies comply with applicable Federal, State, interstate, and local noise control regulations.

Although the EPA was given major public information and Federal agency coordination roles, each Federal agency retains authority to adopt noise regulations pertaining to agency programs. The EPA can require other Federal agencies to justify their noise regulations in terms of the Federal Noise Control Act policy requirements. The Occupational Safety and Health Administration retains primary authority for setting workplace noise exposure standards. The Federal Aviation Administration retains primary jurisdiction over aircraft noise standards.

In 1974, in response to the requirements of the Federal Noise Control Act, the EPA identified indoor and outdoor noise limits to protect public health and welfare (communica-



tion disruption, sleep disturbance, and hearing damage). Outdoor  $L_{dn}$  limits of 55 dB and indoor  $L_{dn}$  limits of 45 dB are identified as desirable to protect against speech interference and sleep disturbance for residential, educational, and health care areas. Noise level criteria to protect against hearing damage in commercial and industrial areas are identified as 24-hour  $L_{eq}$  values of 70 dB (both outdoors and indoors).

**The U.S. Department of Housing and Urban Development.** The U.S. Department of Housing and Urban Development has established guidelines for evaluating noise impacts on residential projects seeking financial support under various grant programs (44 FR 135:40860-40866). Sites are generally considered acceptable for residential use if they are exposed to outdoor  $L_{dn}$  values of 65 dB or less. Sites are considered "normally unacceptable" if they are exposed to outdoor  $L_{dn}$  values of 65-75 dB. Sites are considered unacceptable if they are exposed to outdoor  $L_{dn}$  values above 75 dB.

**United States Department of the Army.** The Army's noise abatement program is implemented in Army Regulation (AR) 200-1 (U.S. Department of the Army 1990). The goal of this program is to achieve compliance with applicable noise regulations in a manner consistent with mission accomplishment.

To achieve this goal, the Army states that it will:

- control environmental noise to protect the health and welfare of military personnel and their dependents, Army civilian employees, and the public adjacent to Army installations and
- reduce community annoyance from environmental noise to the extent feasible, consistent with Army training and material testing activities.

AR 200-1 implements a number of Federal, Department of Defense (DOD), and Army regulations, including the Noise Control Act of 1972, the Quiet Communities Act of 1978, and DOD and Army directives relating to the installation compatible use zone (ICUZ) program.

AR 200-1 specifies that housing, schools, medical facilities, and other noise-sensitive land uses will be sited according to standards specified in Table 8-2. The Army uses the annual day-night noise level (ADNL) for these standards. These criteria are also used for assessment of noise impacts on existing land uses.

DOD policy relating to noise-compatible land use guidance is implemented through the ICUZ program. Each military service has an ICUZ program to investigate, describe, and study noise exposure and land use at all DOD air installations. ICUZ studies for each installation are prepared and given to the public and local, regional, State, and other Federal agencies for use in their land use planning/control and intergovernmental programs and processes. Each study contains noise contours, accident potential zones, existing and future land use compatibilities, and land use planning recommendations.



Table 8-2. Description of ICUZ Noise Zones

ICUZ Noise Zone	A-Weighted Day-Night Sound Level ADNL (dB)	C-Weighted Day-Night Sound Level ADNL (dB)	Classification
I	less than 65	less than 62	acceptable
II	65 to 75	62 to 70	normally unacceptable
III	greater than 75	greater than 70	unacceptable

## **SETTING**

### **Planning Area**

The planning area is currently undeveloped and consists of a complex series of ridges, rolling hills, and relatively flat valleys. It is essentially surrounded by ridges that physically separate the area from San Ramon Valley to the west and Tassajara Valley to the east. The only existing road in the planning area is Dougherty Road, which runs north-to-south in the west half of the planning area.

### **Existing Noise-Sensitive Receptors in the Planning Area**

West of the planning area, the City of San Ramon has designated three planning subareas that contain noise-sensitive land uses. The Dougherty Hills residential area which borders parts of the western and north boundaries of Dougherty Valley, contains noise-sensitive residential uses. The South San Ramon subarea borders Dougherty Valley on the southwestern perimeter and contains existing residential uses in addition to ongoing residential development. Bishop Ranch, which lies west of Dougherty Hills, contains land that has been built with or approved for office and manufacturing uses and no noise-sensitive land uses. The City of Danville, located north of the planning area, also has noise-sensitive residential land uses. Rural residential development is located along Lawrence Road and Camino Tassajara Road east of the planning area.

Recreational and open space areas in and around the planning area can also be considered sensitive to noise during daytime hours.

### **Existing Noise Conditions**

Because of its large size, the planning area is exposed to a wide range of ambient noise levels. Noise levels on different portions of the planning area will vary based on the proximity of noise sources. Several sources of noise currently exist in the vicinity of the project. These noise sources include traffic, helicopters, military activities at Camp Parks, and residential activities.

Existing noise conditions are described based on traffic noise modeling and data contained in previous reports and documents (EIP Associates 1991).

## Traffic

Major sources of traffic noise in the planning area include traffic on I-680, I-580, Alcosta Boulevard, Crow Canyon Road, Camino Tassajara Road, and Dougherty Road. Dougherty Road is the only existing paved road in the planning area.

**Traffic Noise Prediction Model.** The traffic noise levels have been evaluated through use of the Federal Highway Administration (FHWA) traffic noise prediction model (Barry and Reagan 1978). The model estimates average noise levels at a fixed distance from roadway centerlines based on roadway geometrics; traffic volumes for automobiles, medium-duty trucks (with two axles and six tires), and heavy-duty trucks (with three or more axles); vehicle speeds; and a noise attenuation rate parameter. Shielding effects from topography, building structures, and other barriers are not included in the model. This sometimes results in a conservative estimate of noise levels.

This model was programmed by Jones & Stokes Associates to evaluate noise levels over a 24-hour traffic cycle. Hourly traffic speeds are computed from hourly traffic volumes, hourly roadway capacity values, and free-flow speed estimates. The resulting hourly average noise levels at the modeled receptor location are then summarized in terms of 24-hour  $L_{dn}$  values.

Only one set of density assumptions has been evaluated. Because a doubling of traffic volume on a roadway is required for a 3-dB increase in noise, it is unlikely that development under the alternative development scenarios would result in a substantial change in projected traffic noise levels.

Modeling analyses were based on existing and projected daily and peak-hour traffic volumes, existing patterns for the distribution of daily traffic by time of day, and available data regarding the amount of medium-duty and heavy-duty truck traffic. Laneage assumptions used in the noise modeling were based on information provided in the traffic study report and in Figure 8 of the DVSP. Where specific data were not available, Jones & Stokes Associates estimates were used. Existing and projected peak-hour and daily traffic volumes were taken from data presented in Chapter 6, "Circulation". On roadways where daily traffic volumes were not provided, daily volumes were estimated using peak-hour volumes and average peak hour to daily volume ratios.

Noise levels have been analyzed at a fixed distance of 100 feet from the centerline of each roadway analyzed. The distance from the roadway centerline to the 55-, 60-, 65-, and 70- $L_{dn}$  contour lines has also been calculated. The results of traffic noise modeling under existing and future conditions are summarized in Table 8-3. Several residential land uses are exposed to noise levels in excess of 60 dB- $L_{dn}$  and include the following:

- residences within 200-300 feet of Alcosta Boulevard between Crow Canyon Road and I-680,
- residences within about 100 feet of Old Ranch Road,



Table 8-3. Summary of Traffic Noise Analysis

Roadway	Segment	Ldn (dBA) at 100 Feet from the Roadway Centerline					Direct Impact Comparison		Cumulative Impact Comparison
		Existing Conditions	2010 No-Project Conditions	2010 With-Project Conditions	Buildout No-Project Conditions	Buildout With-Project Conditions	2010 with Project minus No Project	Buildout with Project minus No Project	Buildout with Project minus Existing Conditions
Camino Tassajara Road	I-680 and to Diablo Road	68	68	69	68	69	2	0	1
	Diablo Road to Sycamore Valley Road	68	67	69	67	68	2	1	1
	Sycamore Valley Road to Crow Canyon Road	66	68	70	68	69	2	1	3
	Crow Canyon Road to Highland Road	64	68	69	68	68	0	0	4
	Highland Road to Windemere Parkway	61	63	63	66	65	0	0	4
Sycamore Valley Road	Windemere Parkway to I-580	63	66	68	68	69	2	0	6
	I-680 to Camino Tassajara Road	65	67	68	67	68	1	1	3
Crow Canyon Road	I-680 to Alcosta Boulevard	70	70	70	71	71	0	0	1
	Alcosta Boulevard to Dougherty Road	68	67	68	68	68	0	0	0
	Dougherty Road to Camino Tassajara Road	64	68	68	68	68	1	1	4
Bollinger Canyon Road	I-680 to Camino Ramon	70	71	71	71	71	0	0	0
	Camino Ramon to Alcosta Boulevard	66	69	69	69	69	1	0	4
	Alcosta Boulevard to Dougherty Road	62	65	67	65	67	2	2	5
	Dougherty Road to East Branch Road	(a)	(a)	67	(a)	67	(a)	(a)	(a)
	East Branch Road to Windemere Parkway	(a)	(a)	67	(a)	66	(a)	(a)	(a)
Alcosta Boulevard	Windemere Parkway to Dougherty Road	(a)	(a)	67	(a)	66	(a)	(a)	(a)
	Crow Canyon Road to Bollinger Canyon Road	66	68	68	67	68	0	0	2
	Bollinger Canyon Road to Old Ranch Road	62	62	63	62	63	1	0	1
	Old Ranch Road to I-680	67	66	66	66	66	0	0	-1
	Crow Canyon Road to Bollinger Canyon Road	59	64	69	67	69	5	1	10
Dougherty Road	Bollinger Canyon Road to Bollinger Canyon Road (South)	59	65	67	66	68	3	2	9
	Bollinger Canyon Road (South) to Old Ranch Road	59	65	69	66	69	4	3	10
	Dougherty Road between Old Ranch to Dublin	64	68	70	69	70	2	2	6
	Dougherty Road between Dublin to I-580	70	70	70	70	70	0	0	1
East Branch Road	Bollinger Canyon Road to Windemere Parkway	(a)	(a)	62	(a)	62	(a)	(a)	(a)
Windemere Parkway	Bollinger Canyon Road to East Branch Road	(a)	(a)	63	(a)	65	(a)	(a)	(a)
	East Branch Road to Tassajara Road	(a)	(a)	66	(a)	67	(a)	(a)	(a)
Old Ranch Road	Alcosta Boulevard to Dougherty Road	60	56	60	58	60	5	3	1
Highland Road	East of Camino Tassajara Road	54	60	60	62	62	0	1	8
Blackhawk Road	North of Crow Canyon Road	65	66	66	66	66	0	0	0

Notes: (a) = Roadway does not exist under existing or no-project conditions.

- residences along the west side of Dougherty Road within about 175 feet of the road centerline,
- residences within 200-400 feet of Bollinger Canyon Road between I-680 and Dougherty Road, and
- residences within 200-400 feet of Crow Canyon Road between I-680 and Camino Tassajara Road.

### **Aircraft Using Livermore Airport**

Livermore Airport is about 5 miles southeast of the planning area. The current master plan for the airport was prepared in 1975 and includes projected noise contours for 1995. None of the projected contours extend into the planning area (Maestas pers. comm.). The airport is currently working to establish an airport protection area, which would extend 5,000 feet from the north, south, and east edges of the airport and 7,100 feet from the west edge (Maestas pers. comm.). No new development would be allowed in this projection area. The planning area is well beyond these limits, and would therefore be subject only to occasional flyover noise.

### **Training Activities in the Camp Parks Area**

The Camp Parks area is located directly south of the Shappell and Windemere properties in the planning area. A draft ICUZ study was prepared for Camp Parks in 1988, which evaluates the compatibility of noise-generating activities at Camp Parks with surrounding land uses. The study was not finalized due to subsequent changes related to acquisition and disposal of real estate (presently pending) that will affect plans for use of Camp Parks (Warner pers. comm.). Activities at Camp Parks include helicopter use, tracked vehicle use, day and nighttime operations and weapons firing, and heavy equipment operations. Training occurs primarily on weekends from June to August. Some training activities occur daily (Cooke pers. comm.).

The explosive ordnance demolition pit at the northwest corner of the facility is a major source of noise (Warner pers. comm.). The use of the pit for training is relatively infrequent, with an exercise occurring one to two times a week on average (Cooke pers. comm.). The introduction of military equipment, such as helicopters and high-velocity weapons, has increased the noise at the facility and the size of the operating area required to train military personnel. At Camp Parks, this situation is compounded by the increasing emphasis being placed on Reserve components to fill national defense needs.

The firing ranges located along the Alameda/Contra Costa County line are an essential part of the training facility at Camp Parks (Cooke pers. comm.). The ranges are used by all the reserve forces located in the San Francisco Bay Area. None of the firing ranges operate at night (Cooke pers. comm.).

Existing (1988) noise levels reported in the ICUZ study are depicted in Figure 8-2. These noise levels are based on the best information currently available (Warner pers. comm.) and do not include the effects of helicopter activity. Although there are two helicopter pads at the installation, no helicopters are assigned to Camp Parks. Helicopters are used occasionally by some units to practice air drops and carry sling loads. Helicopter training exercises sometimes occur at night. Visiting commanders also use helicopters to access the facility. The Army is conscious of how their training operations may affect residents to the west of the post and have adjusted the location of training operations to the east to minimize noise impacts (Cooke pers. comm.)

The limits of Zone III (unacceptable) are at the installation boundary at the north-west and northeast limits of the facility. Zone II (normally unacceptable) extends off-post at these same locations. Based on these contours, existing residences along Dougherty Road within about a mile of the County line are exposed to noise levels well in excess of the County standard of 60 dB- $L_{dn}$ . Noise complaints are rare (Cooke pers. comm.). This is attributed to efforts by the Army to avoid impacts on residents located to the west of the post.

## **IMPACTS AND MITIGATION MEASURES ASSOCIATED WITH THE SPECIFIC PLAN**

### **Methodology and Significance Criteria**

#### **Methodology**

The following traffic volume scenarios were analyzed to estimate current and future traffic noise conditions and the incremental change in traffic noise levels attributable to the proposed project:

- existing conditions (1992),
- future year conditions (2010) without the proposed project,
- future year conditions (2010) with the proposed project,
- cumulative (i.e., build-out) conditions without the proposed project, and
- cumulative conditions with the proposed project.

Modeling analyses were based on existing and projected daily and peak-hour traffic volumes, existing patterns for the distribution of daily traffic by time of day, and available data regarding the amount of medium-duty and heavy-duty truck traffic.

#### **Significance Criteria**

Two significance criteria were used to evaluate anticipated noise conditions. The first pertains to land use compatibility (i.e., site exposure) as defined in the noise element of the



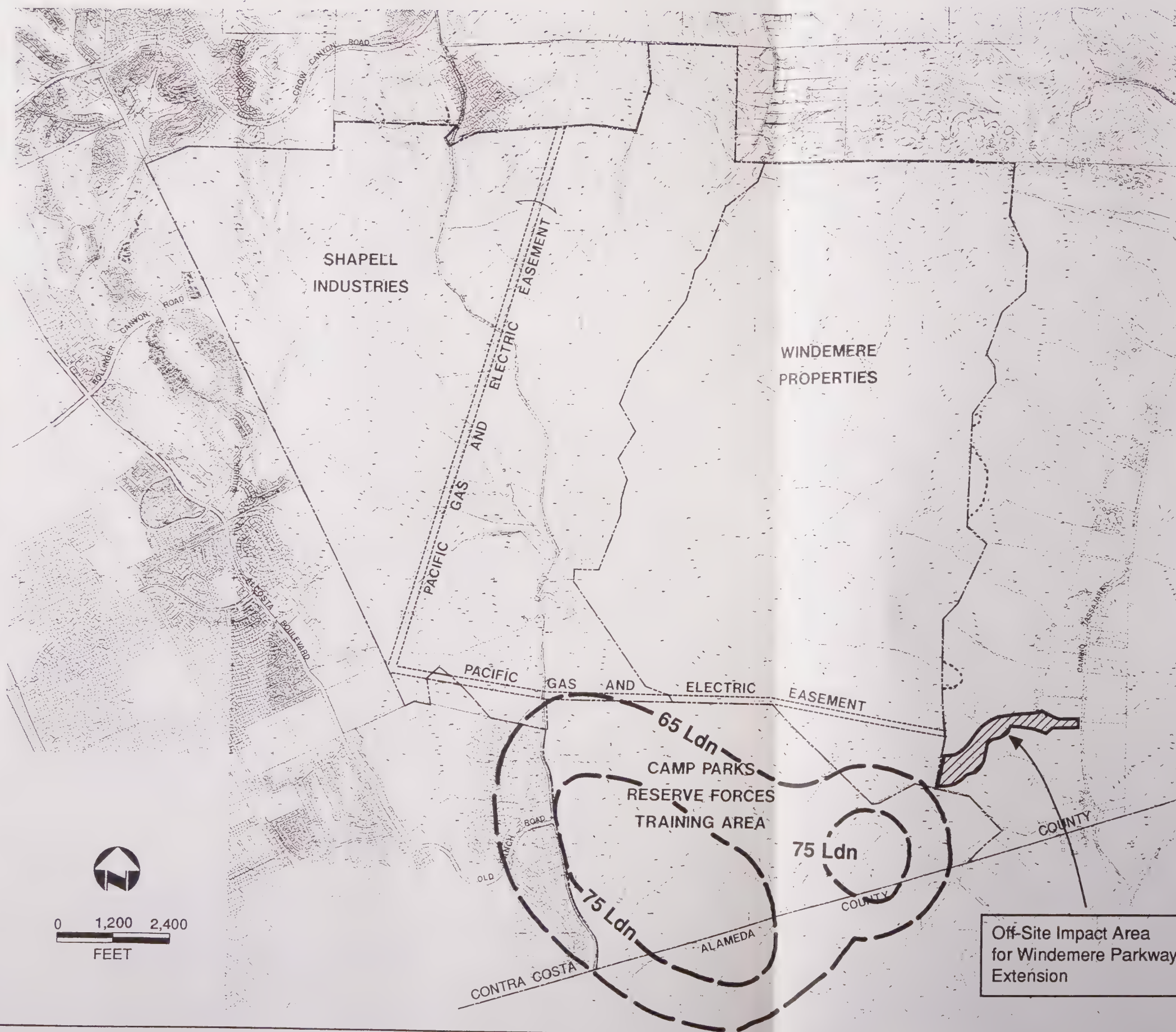


Figure 8-2.  
Existing Noise Contours from  
Activity at Camp Parks (Based  
on Army ICUZ Study [1988])

#### LEGEND

— — — Noise Contours

Note: Helicopter noise not included.

Source: Warner pers. comm.



Contra Costa County General Plan, and the second pertains to project-related incremental noise increases at existing offsite sensitive receptors.

The County's general plan noise element states that locations exposed to  $L_{dn}$  values less than 60 dB are considered normally acceptable for noise-sensitive land uses (e.g., residential, educational, and health care uses). Sixty-five dB is shown as being conditionally acceptable for these land uses. In addition to considering this compatibility criterion, the incremental increases in noise to offsite land uses caused by the project are used to determine significance. An increase in noise of 3 dB or less is typically considered to be imperceptible. An increase in noise of 5 dB is a distinctly noticeable increase and generally used as the threshold for a significant noise increase. Consideration is given to the perceptibility of changes in noise levels in assessing significance at existing sensitive receptors.

A direct noise impact is considered significant if:

- new noise-sensitive land uses that would result from implementation of the project would be exposed to noise level in excess of 60  $L_{dn}$ ,
- predicted noise levels at existing sensitive receptors exceeds the normally acceptable noise level specified in Figure 8-1 and the incremental increase in noise from future no-project conditions to future with-project conditions is greater than 3 dB,
- the incremental increase in noise from future no-project conditions to future with-project conditions is greater than 5 dB at existing sensitive receptors, or
- noise from the project would result in substantial conflict with surrounding current and planned land uses in the area or would likely result in complaints.

A cumulative noise impact is considered significant if:

- noise from the project substantially contributes to a condition where a normally acceptable noise level is exceeded or
- the incremental increase in noise from existing conditions to future with-project conditions is greater than 5 dB.

### **Key Assumptions**

The following assumptions were used in identifying noise impacts:

- Camps Parks will continue to be used as a training facility at a level that is equal to or greater than its current level of use.



Table 8-4. Distance Attenuation for Construction Noise  
in the Project Area

Distance Attenuation		Distance to dB Contours	
Receptor Distance (feet)	Noise Level at Receptor (dBA)	Noise Contour Value (dBA)	Contour Distance (feet)
50	94.0	105	14
100	87.9	100	25
200	81.8	95	45
400	75.5	90	79
600	71.7	85	138
800	68.9	80	240
1,000	66.6	75	417
1,500	62.3	70	736
2,000	59.1	65	1,115
2,500	56.4	60	1,918
3,000	54.1	55	2,902
4,000	50.0	50	4,006
5,280	45.7	45	5,365
7,500	39.3	40	7,407
9,000	35.4	35	9,054
10,560	31.6	30	10,785
15,840	20.1	25	15,170

Notes: The following assumptions were used:

Basic sound-level dropoff rate = 6.0 dB/doubling.

Atmospheric absorption coefficient = 0.5 dB/100 meters.

Reference noise level = 94 dBA.

Distance for reference noise level = 50 feet.

Dropoff calculations include atmospheric absorption at 0.5 dB/100 meters, centered at reference distance.

Except for sounds with highly distinctive tonal characteristics, noise from a particular source will not be identifiable when its incremental noise level contribution is significantly less than background noise levels.

Contour distance calculations are most accurate within the decibel range of the direct attenuation calculations.

This impact is considered significant because implementing the project would result in increased noise levels during construction that may affect residents near the planning area.

### **Mitigation Measure**

- 8.1: To reduce the exposure of onsite and offsite land uses to construction noise, the project proponents should employ noise-reducing construction practices by incorporating the following measures into contract specifications before the County's issuance of grading permits:
  - All equipment should have sound-control devices no less effective than those provided on the original equipment. No equipment should have an unmuffled exhaust.
  - As specified in the Contra Costa County General Plan noise element, construction activities should be concentrated during hours that are not noise-sensitive for adjacent land uses and should be commissioned to occur during normal work hours to provide relative quiet during the more sensitive evening and early morning hours. The County shall set the hours of heavy equipment operation when considering the tentative map approval.
  - As directed by the Contra Costa County Community Development Department, the contractor should implement appropriate additional noise mitigation measures, including, but not limited to, changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activities, notifying adjacent residents in advance of construction work, or installing acoustic barriers around stationary construction noise sources.

Implementing mitigation measure 8.1 would reduce this impact to a less-than-significant level.

### **Impact: Exposure of Residents and Other Noise-Sensitive Land Uses in the Planning Area to Traffic Noise Levels in Excess of Contra Costa County Standards**

Noise levels at a fixed distance of 100 feet from roadway centerlines and the distance from roadway centerlines to the 60-dB- $L_{dn}$  contour line under future no-project and with-project conditions are summarized in the Tables 8-4 through 8-9. Noise-sensitive land uses located along Dougherty Road, Bollinger Canyon Road, East Branch Road, and Windemere Parkway would be exposed to unacceptable noise levels according to guidelines given in the noise element of the Contra Costa County General Plan.

This impact is considered significant because noise-sensitive land uses within the planning area could be exposed to traffic noise levels in excess of Contra Costa County standards.

Table 8-5. Summary of Distances to Traffic Noise Contours for Existing Conditions

Roadway	Segment	Ldn at 100 Feet from Roadway	Distance from Roadway			
			Centerline to Ldn Contour (feet)			
		Centerline	55 Ldn	60 Ldn	65 Ldn	70 Ldn
Camino Tassajara Road	I-680 and to Diablo Road	68	685	318	148	68
	Diablo Road to Sycamore Valley Road	68	700	325	151	70
	Sycamore Valley Road to Crow Canyon Road	66	561	260	121	56
	Crow Canyon Road to Highland Road	64	399	185	86	(b)
	Highland Road to Windemere Parkway	61	247	115	53	(b)
	Windemere Parkway to I-580	63	325	151	70	(b)
Sycamore Valley Road	I-680 to Camino Tassajara Road	65	500	232	108	50
Crow Canyon Road	I-680 to Alcosta Boulevard	70	975	452	210	97
	Alcosta Boulevard to Dougherty Road	68	687	319	148	69
	Dougherty Road to Camino Tassajara Road	64	414	192	89	(b)
Bollinger Canyon Road	I-680 to Camino Ramon	70	1,026	476	221	103
	Camino Ramon to Alcosta Boulevard	66	508	236	109	51
	Alcosta Boulevard to Dougherty Road	62	281	130	60	(b)
	Dougherty Road to East Branch Road	(a)	(a)	(a)	(a)	(a)
	East Branch Road to Windemere Parkway	(a)	(a)	(a)	(a)	(a)
	Windemere Parkway to Dougherty Road	(a)	(a)	(a)	(a)	(a)
Alcosta Boulevard	Crow Canyon Road to Bollinger Canyon Road	66	514	238	111	51
	Bollinger Canyon Road to Old Ranch Road	62	273	127	59	(b)
	Old Ranch Road to I-680	67	670	311	144	67
Dougherty Road	Crow Canyon Road to Bollinger Canyon Road	59	183	85	(b)	(b)
	Bollinger Canyon Road to Bollinger Canyon Road (South)	59	189	88	(b)	(b)
	Bollinger Canyon Road (South) to Old Ranch Road	59	183	85	(b)	(b)
	Dougherty Road between Old Ranch to Dublin	64	397	184	85	(b)
	Dougherty Road between Dublin to I-580	70	936	434	202	94
East Branch Road	Bollinger Canyon Road to Windemere Parkway	(a)	(a)	(a)	(a)	(a)
Windemere Parkway	Bollinger Canyon Road to East Branch Road	(a)	(a)	(a)	(a)	(a)
	East Branch Road to Tassajara Road	(a)	(a)	(a)	(a)	(a)
Old Ranch Road	Alcosta Boulevard to Dougherty Road	60	202	94	(b)	(b)
Highland Road	East of Camino Tassajara Road	54	88	(b)	(b)	(b)
Blackhawk Road	North of Crow Canyon Road	65	501	233	108	50

Notes: (a) = Roadway does not exist under these conditions.

(b) = Contour does not extend beyond the edges of the roadway.



Table 8-6. Summary of Distances to Traffic Noise Contours for 2010 No-Project Conditions

Roadway	Segment	Ldn at 100 Feet from Roadway Centerline	Distance from Roadway Centerline to Ldn Contour (feet)			
			55 Ldn	60 Ldn	65 Ldn	70 Ldn
Camino Tassajara Road	I-680 and to Diablo Road	68	706	328	152	71
	Diablo Road to Sycamore Valley Road	67	610	283	131	(b)
	Sycamore Valley Road to Crow Canyon Road	68	742	344	160	74
	Crow Canyon Road to Highland Road	68	783	364	169	78
	Highland Road to Windemere Parkway	63	332	154	72	(b)
	Windemere Parkway to I-580	66	509	236	110	(b)
Sycamore Valley Road	I-680 to Camino Tassajara Road	67	645	299	139	(b)
Crow Canyon Road	I-680 to Alcosta Boulevard	70	1,075	499	232	107
	Alcosta Boulevard to Dougherty Road	67	676	314	146	68
	Dougherty Road to Camino Tassajara Road	68	710	330	153	71
Bollinger Canyon Road	I-680 to Camino Ramon	71	1,089	505	235	109
	Camino Ramon to Alcosta Boulevard	69	827	384	178	83
	Alcosta Boulevard to Dougherty Road	65	445	206	96	(b)
	Dougherty Road to East Branch Road	(a)	(a)	(a)	(a)	(a)
	East Branch Road to Windemere Parkway	(a)	(a)	(a)	(a)	(a)
	Windemere Parkway to Dougherty Road	(a)	(a)	(a)	(a)	(a)
Alcosta Boulevard	Crow Canyon Road to Bollinger Canyon Road	68	692	321	149	69
	Bollinger Canyon Road to Old Ranch Road	62	294	137	(b)	(b)
	Old Ranch Road to I-680	66	583	271	126	(b)
Dougherty Road	Crow Canyon Road to Bollinger Canyon Road	64	384	178	83	(b)
	Bollinger Canyon Road to Bollinger Canyon Road (South)	65	434	201	93	(b)
	Bollinger Canyon Road (South) to Old Ranch Road	65	434	201	93	(b)
	Dougherty Road between Old Ranch to Dublin	68	748	347	161	75
	Dougherty Road between Dublin to I-580	70	938	436	202	94
East Branch Road	Bollinger Canyon Road to Windemere Parkway	(a)	(a)	(a)	(a)	(a)
Windemere Parkway	Bollinger Canyon Road to East Branch Road	(a)	(a)	(a)	(a)	(a)
	East Branch Road to Tassajara Road	(a)	(a)	(a)	(a)	(a)
Old Ranch Road	Alcosta Boulevard to Dougherty Road	56	114	(b)	(b)	(b)
Highland Road	East of Camino Tassajara Road	60	220	102	(b)	(b)
Blackhawk Road	North of Crow Canyon Road	66	514	239	111	(b)

Notes: (a) = Roadway does not exist under these conditions.

(b) = Contour does not extend beyond the edges of the roadway.

Table 8-7. Summary of Distances to Traffic Noise Contours for 2010 With—Project Conditions

Roadway	Segment	Ldn at 100 Feet from Roadway Centerline	Distance from Roadway Centerline to Ldn Contour (feet)			
			55 Ldn	60 Ldn	65 Ldn	70 Ldn
Camino Tassajara Road	I-680 and to Diablo Road	69	894	415	193	89
	Diablo Road to Sycamore Valley Road	69	882	409	190	88
	Sycamore Valley Road to Crow Canyon Road	70	937	435	202	94
	Crow Canyon Road to Highland Road	69	799	371	172	80
	Highland Road to Windemere Parkway	63	321	149	(b)	(b)
	Windemere Parkway to I-580	68	699	324	151	70
Sycamore Valley Road	I-680 to Camino Tassajara Road	68	787	365	170	79
Crow Canyon Road	I-680 to Alcosta Boulevard	70	1,070	497	231	107
	Alcosta Boulevard to Dougherty Road	68	721	335	155	72
	Dougherty Road to Camino Tassajara Road	68	785	364	169	79
Bollinger Canyon Road	I-680 to Camino Ramon	71	1,098	510	237	110
	Camino Ramon to Alcosta Boulevard	69	908	422	196	91
	Alcosta Boulevard to Dougherty Road	67	619	287	133	(b)
	Dougherty Road to East Branch Road	67	673	313	145	(b)
	East Branch Road to Windemere Parkway	67	598	277	129	(b)
	Windemere Parkway to Dougherty Road	67	599	278	129	(b)
	Crow Canyon Road to Bollinger Canyon Road	68	687	319	148	(b)
Alcosta Boulevard	Bollinger Canyon Road to Old Ranch Road	63	331	153	71	(b)
	Old Ranch Road to I-680	66	583	271	126	(b)
	Crow Canyon Road to Bollinger Canyon Road	69	806	374	174	81
Dougherty Road	Bollinger Canyon Road to Bollinger Canyon Road (South)	67	669	310	144	(b)
	Bollinger Canyon Road (South) to Old Ranch Road	69	820	381	177	82
	Dougherty Road between Old Ranch to Dublin	70	994	461	214	99
	Dougherty Road between Dublin to I-580	70	995	462	214	100
	Bollinger Canyon Road to Windemere Parkway	62	307	143	(b)	(b)
East Branch Road	Bollinger Canyon Road to East Branch Road	63	353	164	76	(b)
Windemere Parkway	East Branch Road to Tassajara Road	66	538	250	116	(b)
Old Ranch Road	Alcosta Boulevard to Dougherty Road	60	232	108	(b)	(b)
Highland Road	East of Camino Tassajara Road	60	216	100	(b)	(b)
Blackhawk Road	North of Crow Canyon Road	66	527	244	113	(b)

Notes: (a) = Roadway does not exist under these conditions.

(b) = Contour does not extend beyond the edges of the roadway.

Table 8–8. Summary of Distances to Traffic Noise Contours For No–Project Buildout Conditions

Roadway	Segment	Ldn at 100 Feet from Roadway Centerline	Distance From Roadway Centerline to Ldn Contour (feet)			
			55 Ldn	60 Ldn	65 Ldn	70 Ldn
Camino Tassajara Road	I–680 and to Diablo Road	68	759	352	163	76
	Diablo Road to Sycamore Valley Road	67	632	293	136	(b)
	Sycamore Valley Road to Crow Canyon Road	68	757	351	163	76
	Crow Canyon Road to Highland Road	68	790	367	170	79
	Highland Road to Windemere Parkway	66	504	234	109	(b)
	Windemere Parkway to I–580	68	791	367	170	79
Sycamore Valley Road	I–680 to Camino Tassajara Road	67	636	295	137	(b)
Crow Canyon Road	I–680 to Alcosta Boulevard	71	1,080	501	233	108
	Alcosta Boulevard to Dougherty Road	68	688	319	148	69
	Dougherty Road to Camino Tassajara Road	68	705	327	152	71
Bollinger Canyon Road	I–680 to Camino Ramon	71	1,091	506	235	109
	Camino Ramon to Alcosta Boulevard	69	879	408	189	88
	Alcosta Boulevard to Dougherty Road	65	474	220	102	(b)
	Dougherty Road to East Branch Road	(a)	(a)	(a)	(a)	(a)
	East Branch Road to Windemere Parkway	(a)	(a)	(a)	(a)	(a)
	Windemere Parkway to Dougherty Road	(a)	(a)	(a)	(a)	(a)
	Crow Canyon Road to Bollinger Canyon Road	67	674	313	145	67
Alcosta Boulevard	Bollinger Canyon Road to Old Ranch Road	62	307	142	(b)	(b)
	Old Ranch Road to I–680	66	560	260	121	(b)
	Crow Canyon Road to Bollinger Canyon Road	67	678	315	146	68
Dougherty Road	Bollinger Canyon Road to Bollinger Canyon Road (South)	66	513	238	111	(b)
	Bollinger Canyon Road (South) to Old Ranch Road	66	513	238	111	(b)
	Dougherty Road between Old Ranch to Dublin	69	798	370	172	80
	Dougherty Road between Dublin to I–580	70	1,029	478	222	103
	Bollinger Canyon Road to Windemere Parkway	(a)	(a)	(a)	(a)	(a)
East Branch Road	Bollinger Canyon Road to East Branch Road	(a)	(a)	(a)	(a)	(a)
Windemere Parkway	East Branch Road to Tassajara Road	(a)	(a)	(a)	(a)	(a)
Old Ranch Road	Alcosta Boulevard to Dougherty Road	58	149	69	(b)	(b)
Highland Road	East of Camino Tassajara Road	62	272	126	(b)	(b)
Blackhawk Road	North of Crow Canyon Road	66	523	243	113	(b)

Notes: (a) = Roadway does not exist under these conditions.

(b) = Contour does not extend beyond the edges of the roadway.



Table 8-9. Summary of Distances to Traffic Noise Contours for With-Project Buildout Conditions

		Ldn at 100 Feet from Roadway	Distance from Roadway Centerline to Ldn Contour (feet)			
Roadway	Segment		Centerline	55 Ldn	60 Ldn	65 Ldn
Camino Tassajara Road	I-680 and to Diablo Road	69	802	372	173	80
	Diablo Road to Sycamore Valley Road	68	784	364	169	78
	Sycamore Valley Road to Crow Canyon Road	69	920	427	198	92
	Crow Canyon Road to Highland Road	68	792	368	171	79
	Highland Road to Windemere Parkway	65	477	222	103	(b)
	Windemere Parkway to I-580	69	821	381	177	82
Sycamore Valley Road	I-680 to Camino Tassajara Road	68	762	354	164	76
Crow Canyon Road	I-680 to Alcosta Boulevard	71	1,080	501	233	108
	Alcosta Boulevard to Dougherty Road	68	696	323	150	70
	Dougherty Road to Camino Tassajara Road	68	768	356	165	77
Bollinger Canyon Road	I-680 to Camino Ramon	71	1,082	502	233	108
	Camino Ramon to Alcosta Boulevard	69	899	417	194	90
	Alcosta Boulevard to Dougherty Road	67	620	288	134	(b)
	Dougherty Road to East Branch Road	67	649	301	140	(b)
	East Branch Road to Windemere Parkway	66	581	270	125	(b)
	Windemere Parkway to Dougherty Road	66	580	269	125	(b)
Alcosta Boulevard	Crow Canyon Road to Bollinger Canyon Road	68	694	322	149	69
	Bollinger Canyon Road to Old Ranch Road	63	319	148	69	(b)
	Old Ranch Road to I-680	66	578	268	124	(b)
Dougherty Road	Crow Canyon Road to Bollinger Canyon Road	69	809	376	174	81
	Bollinger Canyon Road to Bollinger Canyon Road (South)	68	704	327	152	70
	Bollinger Canyon Road (South) to Old Ranch Road	69	818	380	176	82
	Dougherty Road between Old Ranch to Dublin	70	1,056	490	228	106
	Dougherty Road between Dublin to I-580	70	1,066	495	230	107
East Branch Road	Bollinger Canyon Road to Windemere Parkway	62	316	146	(b)	(b)
Windemere Parkway	Bollinger Canyon Road to East Branch Road	65	451	209	97	(b)
	East Branch Road to Tassajara Road	67	675	313	145	(b)
Old Ranch Road	Alcosta Boulevard to Dougherty Road	60	223	104	(b)	(b)
Highland Road	East of Camino Tassajara Road	62	297	138	(b)	(b)
Blackhawk Road	North of Crow Canyon Road	66	517	240	111	(b)

Notes: (a) = Roadway does not exist under these conditions.

(b) = Contour does not extend beyond the edges of the roadway.

## Mitigation Measures

- 8.2: To reduce noise to acceptable levels, the project proponents should locate new residences and other noise-sensitive land uses outside the 60-dB- $L_{dn}$  contour lines caused by traffic and transit sources.

The project proponents should employ setbacks to locate noise-sensitive land uses, such as residences, schools, and health care facilities, outside the 60-dB- $L_{dn}$  contour lines caused by traffic on roads or light rail trains on tracks directly adjacent to these land uses. Distances to 60-dB- $L_{dn}$  contour lines for roads in the planning area are given in Tables 8-6 and 8-8.

or

- 8.3: To reduce noise to acceptable levels, the project proponents should provide sound walls, berms, or other noise control measures between the roads and noise-sensitive land uses that must be located within the 60-dB- $L_{dn}$  contour lines for reasons beyond the project proponents' control.

Where noise-sensitive land uses must be located within the 60-dB- $L_{dn}$  contour lines for reasons beyond the project proponents' control, the project proponents should construct sound walls between the road and noise-sensitive land uses. Sound walls must attenuate noise to less than 60-dB- $L_{dn}$  at noise-sensitive receptor locations.

Sound walls should be designed according to standards in the Community Design Manual, and include intermediate access points for pedestrians and bicyclists to get from one side of the wall to the other.

and

- 8.4: To reduce noise to acceptable levels, the project proponents should incorporate acoustical treatment into the design and construction of residences and other buildings that house noise-sensitive uses to provide an interior noise level of 45  $L_{dn}$  or less at locations exposed to exterior noise in excess of 60  $L_{dn}$ .

Policy 11-2 of the noise element of the Contra Costa County General Plan states that new single-family housing projects are required to provide for an interior noise level of 45  $L_{dn}$  or less. State Noise Insulation Standards (California Administrative Code Title 24, Section T25-28) require the same interior noise level for multifamily housing, hotels,\* and motels.

In some cases, the use of setbacks and sound walls may be insufficient to reduce exterior noise to less than 60  $L_{dn}$ . An example of this would be a two-story home that is located within the 60- $L_{dn}$  contour of a road. Although a sound wall would reduce the noise at ground-floor locations, it would have little or no effect on the second story of the home. In cases where setbacks and sound walls do not reduce exterior noise to less than 60  $L_{dn}$ , the project proponents should incorporate acoustical treatment into the construction of residences and other buildings housing noise-sensitive uses to provide an interior noise level of 45  $L_{dn}$  or less at locations exposed to exterior traffic noise in excess of 60  $L_{dn}$ .

Standard residential building construction with windows closed will typically provide at least 20 dB of noise reduction of exterior noise. Where additional noise reduction is required to achieve an interior noise level of 45  $L_{dn}$  or less, the project proponents should incorporate the following features into project design to reduce interior noise levels:

- minimize the extent of windows, glass sliding doors, vents, and other openings in building shell walls that face roads or railways;
- orient garages and activity rooms so that they will shield bedrooms and other noise-sensitive areas of dwellings from exterior noise sources;
- install extra wall and ceiling insulation, additional wallboard material, and acoustical caulking when a substantial improvement in building shell sound transmission loss can be achieved;
- use acoustically rated glazing for windows and sliding doors; and
- install airtight seals between window or door frames and exterior walls.

As a condition of approval of tentative subdivision maps, the project proponents should provide a detailed acoustical analysis describing how the interior noise level standard will be achieved for each residential area, subject to noise within the 60-dB contour line. This detailed acoustical analysis should be reviewed and approved by the Community Development Department before approval of final subdivision maps.

The State Noise Insulation Standards require that an acoustical analysis be prepared under the supervision of a person experienced in the field of acoustical engineering. The report must provide the following:

- information proving that the structure has been designed to limit intruding noise levels to 45-dB CNEL,
- information on the topographical relationship of noise sources and the structure site,
- identification of noise sources and their characteristics,
- predicted noise spectra at the exterior of the proposed structure considering present and future land uses,
- basis for the prediction (measured or obtained from published data),
- noise attenuation measures to be applied, and
- analysis of the noise insulation effectiveness of the proposed construction showing that the prescribed interior noise level requirements are met.



Implementing mitigation measures 8.2 or 8.3 and 8.4 would reduce this impact to a less-than-significant level.

#### **Impact: Exposure of Residents in the Planning Area to Noise from Training Activities at Camp Parks**

The Camp Parks military training area is located directly south of the planning area. The Army plans to retain ownership of the land north of the County line and to continue using this area to its fullest extent (Warner pers. comm.). Although the Army is re-evaluating their use of the facility, any modified use will be at least as great as the current use, and it is expected that there will be an increase in the number of "person-days" of use (Warner pers. comm.). The Army has long-term plans to continue using the facility and to extend the current duration of use from June through August to at least April through October (Warner pers. comm.). In the ICUZ study, it is stated that the facility would be used to capacity on most weekends throughout the year.

Existing (1988) noise levels reported in the ICUZ study are depicted in Figure 8-2. Projected noise levels based on anticipated future military use are depicted in Figure 8-4. These noise levels are based on the best information currently available (Warner pers. comm.) but do not include the effects of helicopter activity. Although there are two helicopter pads at the installation, no helicopters are assigned to Camp Parks. Helicopters are used occasionally by some units to practice air drops and carry sling loads. Helicopter training exercises sometimes occur at night. Visiting commanders also use helicopters to access the facility.

Under the projected noise conditions, the limits of Zone II ( $65 L_{dn}$ ) extend into existing residential areas west of the facility and residential areas proposed by the project northeast of the facility. Zone III ( $75 L_{dn}$ ) also extends into this proposed residential area. The estimated location of the  $60-L_{dn}$  contour lines is also shown on these figures for use in assessing noise impacts relative to Contra Costa County standards.

Noise impacts from activities at Camp Parks on the proposed project are considered significant because a substantial portion of residential land uses on the southern end of the planning area could be exposed to noise levels in excess of the County standard of  $60 L_{dn}$ . Noise from helicopter activity not included in the project noise contours would aggravate this situation if the Army does not take specific measures to avoid affecting the new residential areas. On page 4-12 of the DVSP, it is stated that lands abutting military property are designated for uses that are compatible with continuing military training. This is in conflict with the location of noise contour lines presented in the ICUZ study.

#### **Mitigation Measures**

- 8.5: To reduce noise to acceptable levels, the project proponents should locate new noise-sensitive land uses on the project site so that noise from Army activities does not exceed County noise standards.

As a condition of approval of tentative subdivision maps, the project proponents should provide a detailed acoustical analysis describing how the interior noise level standard will be achieved for each residential area, subject to noise within the 60-dB contour line. This detailed acoustical analysis should be reviewed and approved by the Community Development Department before approval of final subdivision maps.

or

- 8.6: To reduce noise to acceptable levels, the Army should relocate noise-generating activities so that noise from these activities does not exceed County noise standards at new noise-sensitive land uses in the planning area. This would be done at the project proponents' expense and only with the approval of the Army. As specified in policy 11-10 of the Contra Costa County noise element, this analysis should be conducted for all noise-sensitive land uses located within 6,000 feet of Camp Parks.

As a condition of approval of tentative subdivision maps, the project proponents should provide a detailed acoustical analysis describing how the interior noise level standard will be achieved for each residential area, subject to noise within the 60-dB contour line. This detailed acoustical analysis should be reviewed and approved by the Community Development Department before approval of final subdivision maps.

Implementing mitigation measure 8.5 or 8.6 would reduce this impact to a less-than-significant level.

#### **Impact: Potential Exposure of Residents in the Planning Area to Noise from Light Rail Train Passages**

The DVSP includes the possible future addition of an advanced light rail system to provide internal circulation and links to nearby office developments and other destinations. Although details on the type of trains, location of the alignment, and the train schedule have not been determined, an estimation of the noise generated by typical light rail train passages can be made.

The data used to estimate the noise impacts of light rail trains are based on schedules for the light rail system in Sacramento. A typical schedule results in about 64 train passages per day in each direction, with about 19% of those passages occurring during nighttime hours between 10 p.m. and 7 a.m. Trains arrive at stations every 15 minutes during daytime hours and every half hour during late night hours. With trains traveling both day and night, there is thus a train passage every 7.5 minutes during the day and every 15 minutes at night. A typical train is assumed to consist of three cars. For the purposes of this analysis, it is assumed that the average train speed on an open stretch of track is about 45 miles per hour.



Figure 8-4.  
Future Noise Contours from  
Activity at Camp Parks

**LEGEND**

— Noise Contours

Note: Helicopter noise not included.

**LAND USE**

**SM** Single Family Medium  
Density Residential

**ML** Multiple Family Low  
Density Residential

**MH** Multiple Family High  
Density Residential

**C** Commercial

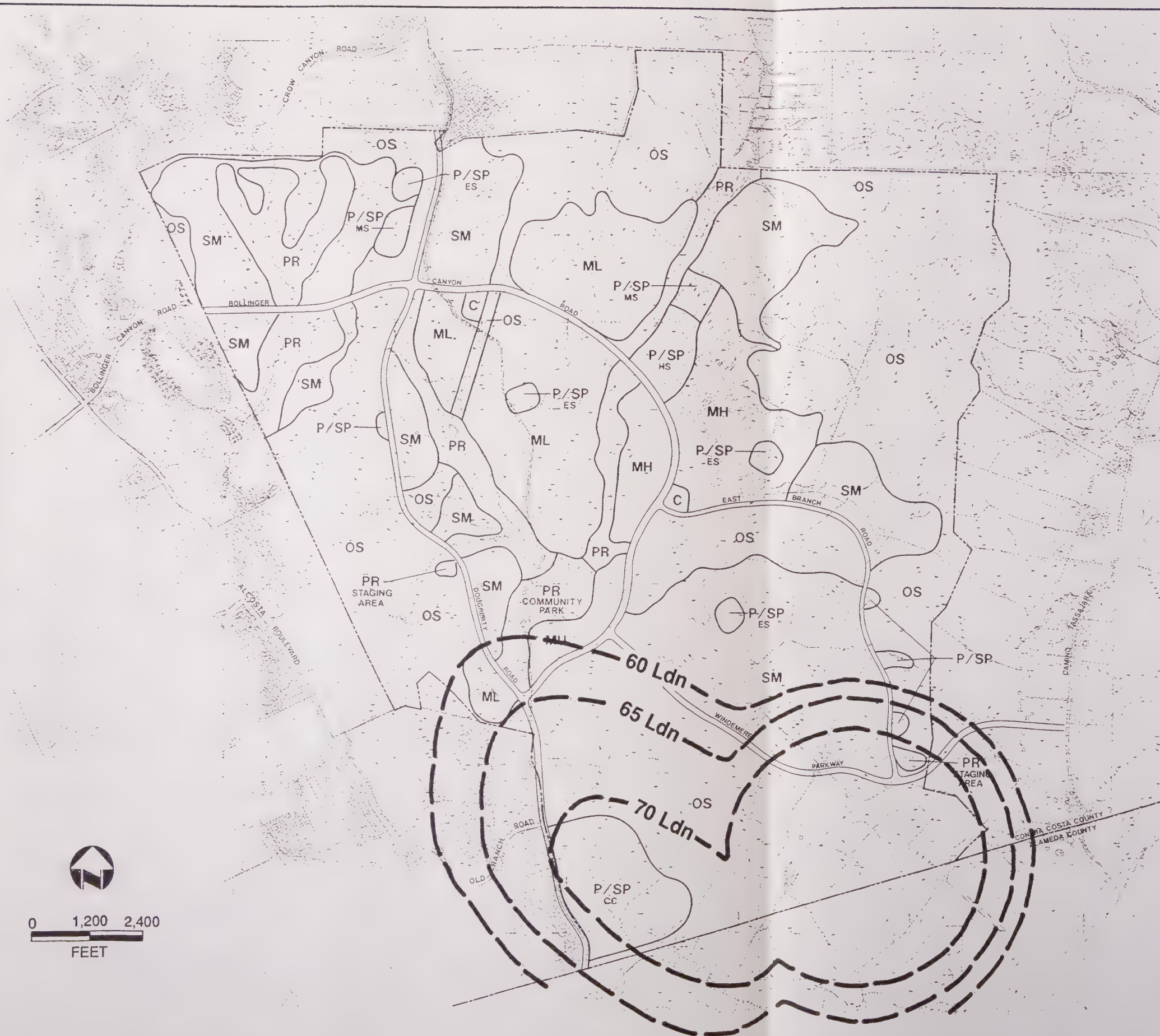
**MU** Mixed Use (Village Center  
Includes Multiple Family Medium  
Density Residential)

**P/SP** Public/Semi-Public (Community  
College; Elementary, Middle, High  
Schools; Other)

**PR** Parks and Recreation

**OS** Open Space

▬ Primary Roads



Source: Warner pers. comm.





Using analysis methods suggested by the Urban Mass Transit Administration (Wilson, Ehrig and Associates 1982), it is estimated that the 60-dB- $L_{dn}$  contour would be located about 100 feet from the track. The actual distance will depend on the final configuration and schedule of the light rail system. Residential land uses located within about 100 feet of the light rail track would be exposed to noise levels in excess of the County standard of 60 dB- $L_{dn}$ .

This impact is considered significant because residential land uses could be exposed to noise from light rail in excess of the County standard of 60 dB- $L_{dn}$ .

### **Mitigation Measures**

- 8.2 or 8.3 and 8.4: These mitigation measures are described above.

As a condition of approval of tentative subdivision maps, the project proponents should provide a detailed acoustical analysis describing how the interior noise level standard will be achieved for each residential area, subject to noise within the 60-dB contour line. This detailed acoustical analysis should be reviewed and approved by the Community Development Department before approval of final subdivision maps.

- 8.7: An EIR on the implementation of the light rail train system should be required prior to final project implementation.

Implementing mitigation measures 8.2 or 8.3, 8.4, and 8.7 would reduce this impact to a less-than-significant level.

### **Impact: Exposure of Residents along Old Ranch Road to a Substantial Increase In Noise**

The traffic noise modeling analysis indicates that noise levels at existing residences along Old Ranch Road would be exposed to a noise increase by 5 dBA under 2010 conditions as a direct result of implementation of the project. Under buildout conditions, all noise increases as result of the project would be 3 dB or less.

This impact is considered significant because implementing the project would result in a substantial increase in traffic noise at existing residences.

### **Mitigation Measures**

- 8.8: To reduce noise to acceptable levels, the project proponents should provide sound walls along Old Ranch Road adjacent to existing residences.

To reduce the increase in noise to a less-than-significant level, the increase in noise would need to be reduced by 2 to 3 dB. Construction of a standard sound

wall would be expected to provide this level of noise reduction. The project proponents should provide sound walls along Old Ranch Road adjacent to existing residences, subject to the concurrence of the City of San Ramon.

- 8.9: To reduce noise to acceptable levels, the project proponents should upgrade the acoustical insulation of existing homes that abut Old Ranch Road where sound walls will not be effective in reducing exterior noise.

In some cases, the use of sound walls may not effectively reduce the increase in exterior noise to a less-than-significant level. An example of this would be a two-story home that is located adjacent to the road. Although a sound wall would reduce the noise at ground-floor locations, it would have little or no effect on the second story of the home. In cases where sound walls would not reduce exterior noise by 2 to 3 dB, the project proponents should upgrade the acoustical insulation of existing homes that abut Old Ranch Road to provide an additional 2-3 dB of exterior noise reduction. This impact will occur when traffic from Dougherty Valley becomes substantial. This effort should be required before 4,000 units are completed.

Treatments to improve the acoustical insulation of existing homes would include, but not be limited to, the following:

- install extra wall and ceiling insulation, additional wallboard material, an acoustical caulking when a substantial improvement in building shell sound transmission loss can be achieved;
- install acoustically rated glazing for windows and sliding doors; and
- install airtight seals between window or door frames and exterior walls.

As a condition of approval of tentative subdivision maps, the project proponents should provide a detailed acoustical analysis describing how sound walls or upgraded acoustical insulation will reduce the increase in traffic noise by 2-3 dB.

Implementing mitigation measures 8.8 and 8.9 would reduce this impact to a less-than-significant level.

#### **Impact: Exposure of Residents along Dougherty Road near Old Ranch Road to Excessive Noise Levels**

Current residents along Dougherty Road near Old Ranch Road would be exposed to noise levels in excess of 60 dB- $L_{dn}$  as a result of implementing the project background growth.

This impact is considered significant because the County standard would be exceeded and an increase in noise directly attributed to the project is greater than 3 dB under 2010



conditions. Under buildout conditions, the increase in noise attributed to the project would be 3 dB or less.

### **Mitigation Measures**

- 8.10: To reduce noise to acceptable levels, the project proponents should provide sound walls or berms along Dougherty Road adjacent to current residences.

To reduce the noise impact that would result from implementation of the project to a less-than-significant level, the increase in noise would need to be reduced by 2 to 3 dB. Construction of a standard 6- to 8-foot sound wall or berm would be expected to provide this reduction. The project proponents should provide sound walls along Dougherty Road adjacent to current residences.

**or**

- 8.11: The project proponents should upgrade the acoustical insulation of existing homes along Dougherty Road where sound walls or berms will not be effective in reducing exterior noise.
- 8.12: New homes being built in the City of San Ramon should be required to have adequate acoustical insulation so that additional homes will not need to be retrofitted.

In some cases, the use of sound walls may not effectively reduce the increase in exterior noise to a less-than-significant level. An example of this would be a two-story home that is located adjacent to the road. Although a sound wall would reduce the noise at ground-floor locations, it would have little or no effect on the second story of the home. In cases where sound walls would not reduce exterior noise by 2 to 3 dB, the project proponents should upgrade the acoustical insulation of existing homes along Dougherty Road to provide an additional 2 to 3 dB of exterior noise reduction.

Treatments to improve the acoustical insulation of existing homes would include, but not be limited to, the following:

- install extra wall and ceiling insulation, additional wallboard material, an acoustical caulking when a substantial improvement in building shell sound transmission loss can be achieved;
- install acoustically rated glazing for windows and sliding doors; and
- install airtight seals between window or door frames and exterior walls.

As a condition of approval of tentative subdivision maps, the project proponents should provide a detailed acoustical analysis specifying sound wall heights and describing how sound walls or upgraded acoustical insulation will reduce the increase in traffic noise by 2 to 3 dB.

Implementing mitigation measures 8.10 *or* 8.11 and 8.12 would reduce this impact to a less-than-significant level.

#### **Impact: Exposure of New Residents to Noise from Recreational and Cultural Facilities**

The DVSP states that recreational facilities such as playfields and cultural facilities such as amphitheaters will be encouraged. Noise from these facilities has the potential to adversely affect adjacent neighbors. This impact is considered significant because noise from these facilities has the potential to result in complaints from neighbors.

#### **Mitigation Measure**

- 8.13: To reduce the potential for complaints from neighbors, the project proponents should incorporate noise control features, such as setbacks and barriers, into the design of recreational and cultural facilities that have the potential to generate noise.

The project proponents should incorporate noise control design features into the design of recreational and cultural facilities that have the potential to generate noise. These features would include:

- minimum setbacks to maximum attenuation over distance,
- orientation of facilities to direct noise away from noise sensitive areas, and
- sound walls or berms to protect noise sensitive areas.

As a condition of approval of tentative subdivision maps, the project proponents should provide a detailed acoustical analysis describing how noise control design feature will reduce noise to acceptable levels.

Implementing mitigation measure 8.13 would reduce this impact to a less-than-significant level.

### **Cumulative Impacts**

#### **Impact: Exposure of Existing and Planned Noise-Sensitive Locations to Noise Levels in Excess of County Noise Standards**

Under cumulative buildout conditions, current and planned noise-sensitive land uses (primarily residential) will be exposed to substantial noise increases and absolute noise levels in excess of the County standard of 60 dB- $L_{dn}$ . This will result primarily because of cumulative growth and related traffic noise increases on area roadways. As indicated in Table 8-3, implementation of the project will contribute to these excess noise conditions along all the roadways analyzed except Old Ranch Road.

This impact is considered significant because noise-sensitive land uses will be exposed to excessive noise conditions and this project will contribute to these excess noise conditions. Implementing the mitigation measures described above for direct impacts would substantially reduce impacts in the planning area and some offsite locations. Significant cumulative impacts would still exist at offsite locations. Implementing mitigation measures similar to those described for direct project impacts to reduce all offsite cumulative impacts to less-than-significant levels are not considered feasible.

Therefore, this impact is considered significant and unavoidable.





## **Chapter 9. Soils and Geology**

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### **INTRODUCTION**

Geologic reconnaissance reports for the Shapell and Windemere properties of the Dougherty Valley planning area were prepared in 1988 and 1989, respectively (ENGEO 1988, 1989). A similarly detailed report for the Camp Parks property, however, was not prepared. Information on geology and soils of this portion of the planning area has been obtained from other sources, including the soil survey of Contra Costa County (U.S. Soil Conservation Service 1977) and the Dougherty Valley Growth Management and Specific Plan Draft EIR (EIP Associates 1991).

### **SETTING**

#### **Geology**

##### **Regional Geology**

The Dougherty Valley planning area is located along the eastern margin of the seismically active Coast Ranges geomorphic province, which stretches nearly 600 miles from the California/Oregon border to Santa Barbara County in southern California. The complex geologic history is closely tied to the major fault systems that run parallel to the province and are considered part of the transition zone between the North American and Pacific tectonic plates (Norris and Webb 1990).

Mount Diablo is the major geologic and topographic feature in the planning area, whose peak rises 3,849 feet above sea level approximately 6 miles north of the planning area. Mount Diablo is a plug of mixed Franciscan rocks, including serpentinites and some sedimentary and volcanic rock, and is part of the Diablo Range that stretches 130 miles from the Carquinez Strait in the north to Coalinga in the south.

The Dougherty Valley planning area and adjacent region have been mapped by geologists of the U.S. Geological Survey (USGS) and California Division of Mines and Geology (CDMG) (Davenport 1986). The products of the USGS mapping include bedrock geology maps and photointerpretive landslide maps. The CDMG prepared a bedrock geology map, a landslide map, a debris flow susceptibility map, and a landslide susceptibility map. The CDMG investigation used the USGS maps as a point of departure for its study and the scope of work included photointerpretation, field mapping, and review of

consultant-prepared reports that were available about 1984. These data sources provided detailed information for subsequent developer-sponsored investigations. Figure 9-1 shows a landslide hazard identification of the planning area.

The developers, Shapell Industries and Windemere, retained ENGEO, Inc. to perform reconnaissance-level investigations of their properties, and the ENGEO reports were reviewed by Harlan-Tait Associates (HTA) on behalf of the City of San Ramon. The following discussion of site geologic characteristics is derived from HTA's review (EIP Associates 1991).

## **Geology of the Planning Area**

The Dougherty Valley planning area is located on the southwest flank of the Mount Diablo plug. Geology in the planning area is characterized mostly by poorly consolidated folded and faulted nonmarine sedimentary rocks of the Contra Costa group, interbedded with traces of volcanic tuffs, ranging in age from Miocene to Pleistocene. More recent terrace and alluvial deposits occur in streams and valleys, and colluvium (slopewash deposits) occur in swales and at the top of ridges. The geologic units in the planning area are described below and shown in Figure 9-2.

**Quaternary Alluvium Deposits.** Quaternary alluvium deposits (Qal) consist of unconsolidated, nearly level gravel, sand, silt, and clay deposited by Holocene-age streams and are found along stream channels mostly within the central planning area along Alamo Creek. Because of its unconsolidated nature, alluvium is easily excavated and can form relatively unstable slopes in exposed cuts (EIP Associates 1991).

**Quaternary Terrace Deposits.** Quaternary terrace deposits (Qt) form relatively level benches of unconsolidated gravel, sand, silt, and clay deposited by Quaternary-age streams. These deposits are found in the central planning area along Alamo Creek and are similar in character to alluvium.

**Tassajara Formation.** The Tassajara Formation (Pta) is located in the southeastern portion of the planning area and consists of lacustrine deposits of poorly consolidated claystone interbedded with thin beds of sandstone, pebble to cobble conglomerate, dolomite, and limestone. As a whole, the formation is poorly consolidated and weakly cemented. Soils overlying this formation are commonly expansive and often associated with creep-related movement on slopes as gentle as 13%. As a result, the potential for surficial ground failure, even on the relatively flat ridgetops, exists.

**Undivided Continental Rocks.** The undivided continental rocks unit (Mcu) consists of discontinuous lenses of poorly consolidated claystone and siltstone interbedded with moderately to well-consolidated sandstone, tuff and ash, and pebble conglomerate. Several folds and minor faults are found in this unit. Expansive soils form on this unit and lead to creep movement, and the potential for ground failure exists. This unit covers the northern half of the planning area and contains the majority of the colluvium and landslide deposits.





Figure 9-1.  
Geologic Map of the Dougherty  
Valley Planning Area

LEGEND

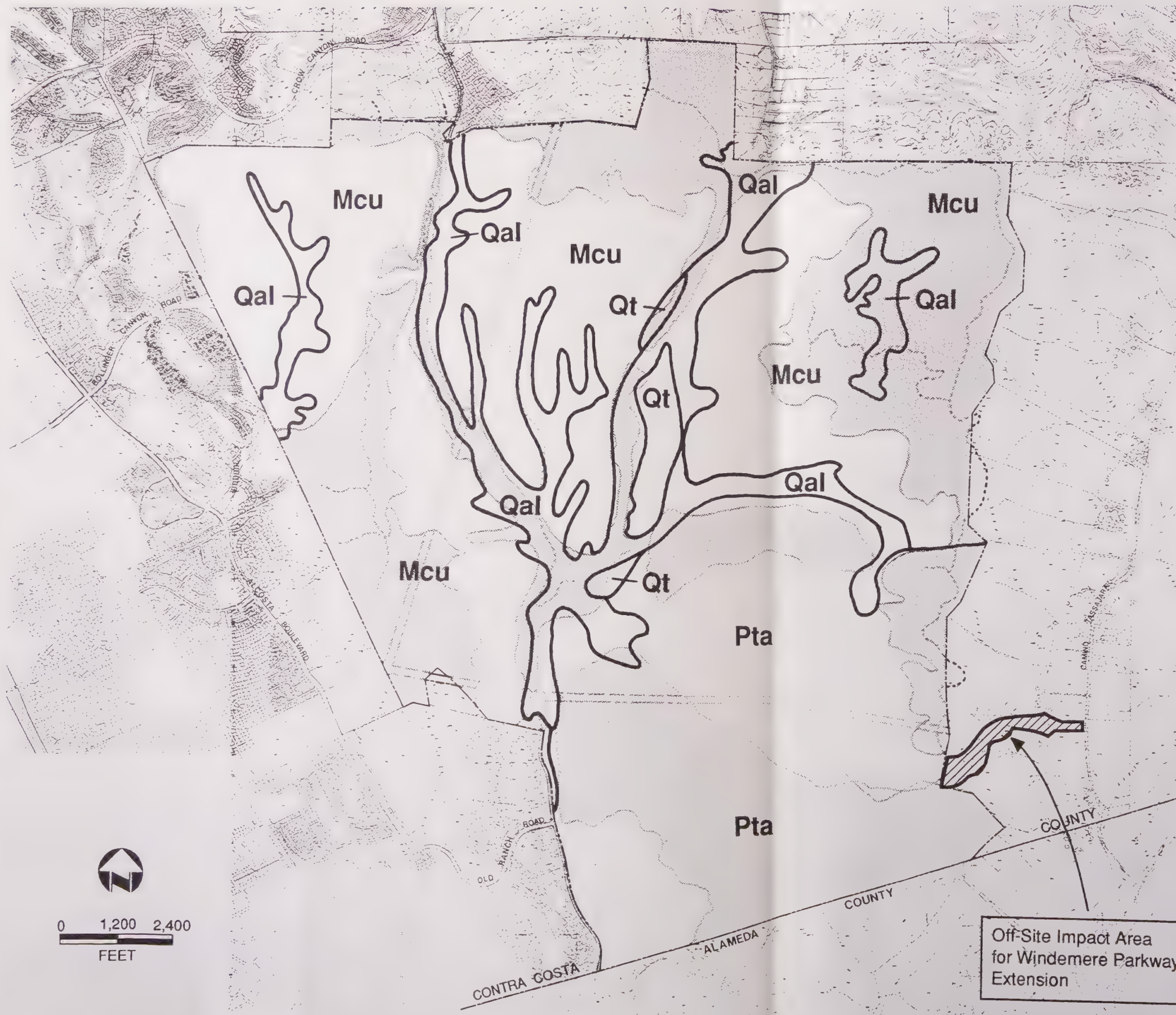
- cf Artificial Cut and Fill
- Q Alluvium (Holocene-Quaternary)
- Qls Landslide Deposit
- Qc Colluvium/Alluvial Fan Deposits
- Qt Alluvial Terrace Deposits (Quaternary)
- Pta Tassajara Formation (Pliocene)
- Mcu Undivided Cotinental Rocks (Miocene-Pliocene)
- Mn Neroly Formation (Miocene)
- Msp San Pablo Group Undifferentiated (Miocene)
- ▲▲▲▲ Lapilli Tuff and Ash Layers
- ~ ~ ~ ~ Approximate Locations of Geologic Contacts
- ~~~~~ Approximate Location of Major Faults
- sol bed + Strike and Dip of Bedding, Overturned Beds, and Vertical Bedding
- | Apparent Strike and Dip of Bedding
- ⋈ Anticline, Overturned Anticline
- ⋈ Syncline
- Lineament
- ♀ Springs and Seeps

Source: California Department of  
Mines and Geology





Figure 9-2.  
Generalized Geology of the  
Dougherty Valley Planning  
Area



**LEGEND**

**Qal** Quaternary Alluvium Deposits

**Qt** Quaternary Terrace Deposits

**Pta** Tassajara Formation

**Mcu** Undivided Continental Rocks  
Contra Costa Group,  
Undivided

Developed Impact Area  
(Mass Grading)

Areas in Which Grading Will Be  
Limited to Development of  
Special Facilities





## **Topography**

Continuous weathering and downslope transport processes, including landsliding and stream erosion processes, have created the existing landform of the Dougherty Valley planning area. The planning area is characterized by linear ridge crests, spur ridges with alternating swales and ridges, and lower valley regions. Elevations in the planning area range from as low as 425 feet to more than 1,100 feet (Figure 9-3).

As shown in Figure 9-3, two major north-south trending ridgelines occur in the planning area. These ridgelines are designated in the Contra Costa County General Plan as "major scenic" ridges and are protected from activities that would harm their scenic value. The longer and higher ridgeline reaches heights of approximately 1,121 feet and forms the eastern boundary of the planning area; the shorter and lower ridgeline has a maximum height of 855 feet and is located near the western boundary of the planning area.

Figure 9-3 also shows the spur ridges (referred to as "other significant ridgelines" with alternating swales and lower ridges. The spur ridges are approximately as high as the lower main ridgeline but are much shorter in length. The central valley region, which was created by erosion and deposition of Alamo Creek and its tributaries, forms the lowest elevations of the planning area and reaches a minimum elevation of 425 feet at the southwestern boundary of the planning area.

## **Slopes**

Most of the planning area, with the exception of the broad stream valleys in the central portion, is covered with hills and ridges with moderate to steep slopes. Approximately 30% of the 5,995 acres making up the Dougherty Valley planning area consists of steep slopes (slopes of 26% and greater), and 29% consists of moderate slopes of 15% to 26%. The remaining 41% are gentler slopes of less than 15% (Nolte and Associates 1992, U.S. Geological Survey 1973). Figure 9-4 shows the location of slopes of 26% and greater in the planning area.

## **Conceptual Grading Plan**

The safety element of the Contra Costa County General Plan suggests that residential densities decrease as slope increases above 15%. It also considers development requiring extensive grading on significant hillsides with slopes of 26% or greater to be discouraged, especially outside the urban limit line (Cutler pers. comm.). The general plan also provides for the protection of the major scenic ridgelines that occur in the Dougherty Valley planning area.

A preliminary conceptual grading plan was developed for the planning area at a scale of 1 inch equals 400 feet. This grading plan avoids cutting or adding fill to the area's major scenic ridgelines. Other significant ridgelines are also to be retained. Figure 9-3 shows that the proposed area to be graded would not include these ridgelines. Contiguous open space

areas would not be extensively graded. However, as indicated in Figure 9-4, some areas with slopes of 26% and greater are designated for mass grading (approximately 630 acres).

The preliminary grading plan shows engineered slopes with gradients of 3:1 (horizontal to vertical) separating graded pads that possess slopes of 2-5%. Although the 3:1 slopes will not require midslope drainage terraces, a lined brow ditch will be needed at the top of slope and a ditch would be required at the toe of slope. The conceptual grading plan indicates that the slopes will be used to separate neighborhoods, and the slopes will be contoured to mimic natural terrain features. Within areas to be developed, the project proponents propose to lower and flatten knolls and low ridges and place fill on the valley bottom land that is adjacent to creek corridors.

Designated open space areas are proposed for grading for the following reasons:

- construction of reservoirs and their access roads (domestic water, reclaimed water);
- construction of regional trails, feeder trails, and related facilities;
- control of stormwater, including detention basins and channel improvements required by the Flood Control District;
- creation of wetland mitigation areas; and
- stabilization of any landslide that poses a hazard to nearby downslope development.

Approximately 62.5 million cubic yards of material in the planning area would be excavated and 62 million cubic yards of fill material would be required. The difference between the anticipated amount of excavated material and the amount of needed fill material (0.5 million cubic yards) is due to compaction "shrinkage". Table 9-1 lists preliminary cut-and-fill volumes for each property: Shapell, Windemere, and Camp Parks. Only Camp Parks' volumes of cuts would balance the volumes of fill. The Shapell property would require additional fill material; the Windemere property would have an excess of fill (Figures 9-5 and 9-6).

### **Slope Instability**

Unstable hillslopes are one of the major geologic hazards in Contra Costa County, and areas of potential slope instability occur in the planning area (Contra Costa County 1991). The USGS has prepared a set of photointerpretive maps that show the distribution of suspected landslides throughout the San Francisco Bay Area. These maps were based chiefly on photointerpretation and supplemented by local field checks of selected areas. The resulting maps do not classify the slides mapped by age, depth of slide plane, or type of deposit. Nevertheless, the map fulfills its intended function of "red-flagging" areas that require detailed site-specific study.



Figure 9-3.  
Ridgelines and Limits of  
Extensive Grading in the  
Dougherty Valley  
Planning Area



**LEGEND**







-  Major Ridgelines
-  Other Significant Ridgelines
-  Significant Creeks
-  Elevation Point (feet)
-  Developed Impact Area (Mass Grading)
-  Areas in Which Grading Will Be Limited to Development of Special Facilities








Figure 9-4.  
Slopes 26% or Greater  
in the Dougherty  
Planning Area



LEGEND

-  Areas with Slopes of 26% or Greater
-  Developed Impact Area (Mass Grading)
-  Areas in Which Grading Will Be Limited to Development of Special Facilities

Off-Site Impact Area  
for Windemere Parkway  
Extension

Source: Nolte and Associates 1990;  
U.S. Geological Survey 1973





Table 9-1. Preliminary Earthwork Estimates for the Dougherty Valley Planning Area

Property	Required Volume of Cuts (cubic yards)*	Required Volume of Fill (cubic yards)*	Balance <sup>a</sup> (cubic yards)*
Shapell	26,700,000	27,500,000	(747,100)
Windemere <sup>b</sup>	34,200,000	32,830,000	1,370,000
Camp Parks <sup>c</sup>	<u>1,700,000</u>	<u>1,700,000</u>	<u>0</u>
Total	62,600,000	61,980,900	620,000

<sup>a</sup> Parentheses indicate that required fill exceeds the excavation and fill must be borrowed; no parentheses indicates that required excavation exceeds the fill and excess must be stockpiled; zero indicates that volume of fill is equal to volume of excavation.

<sup>b</sup> Area to be graded in Windemere property also includes the portion of Camp Parks property that would serve as right-of-way for the Windemere Parkway, which would provide access to the planning area from Tassajara Road (see Figure 6-5, "Planned Roadway Improvements").

<sup>c</sup> Area to be graded in Camp Parks includes only land needed for the planned community college and the additional right-of-way needed for Dougherty Road on Camp Parks' eastern boundary.

\* All volumes are approximate and have been rounded.

Source: Jencks pers. comm.

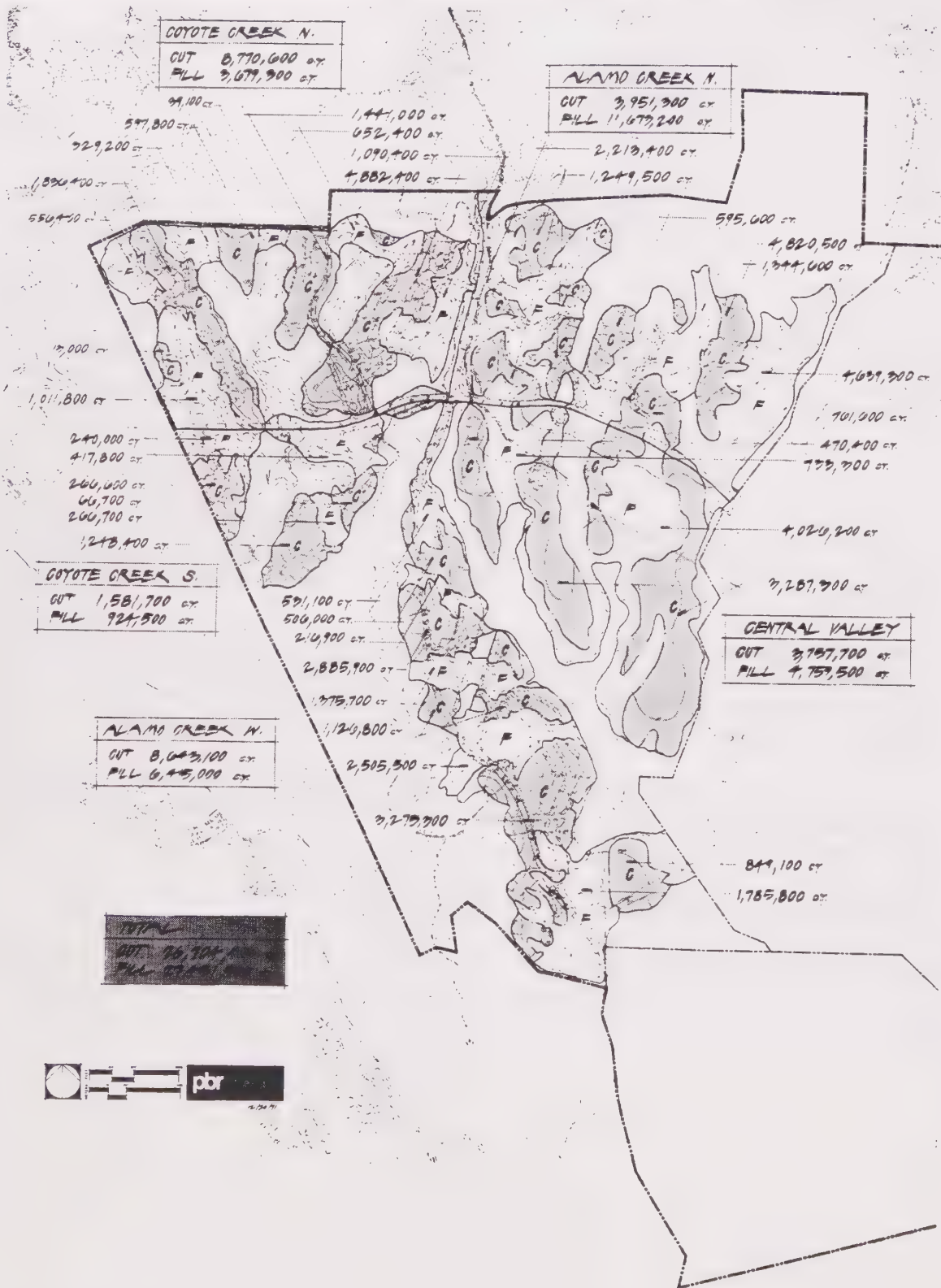


Figure 9-5. Cut/Fill Map of the Dougherty Valley Planning Area - Shapell

Source: PBR 1992



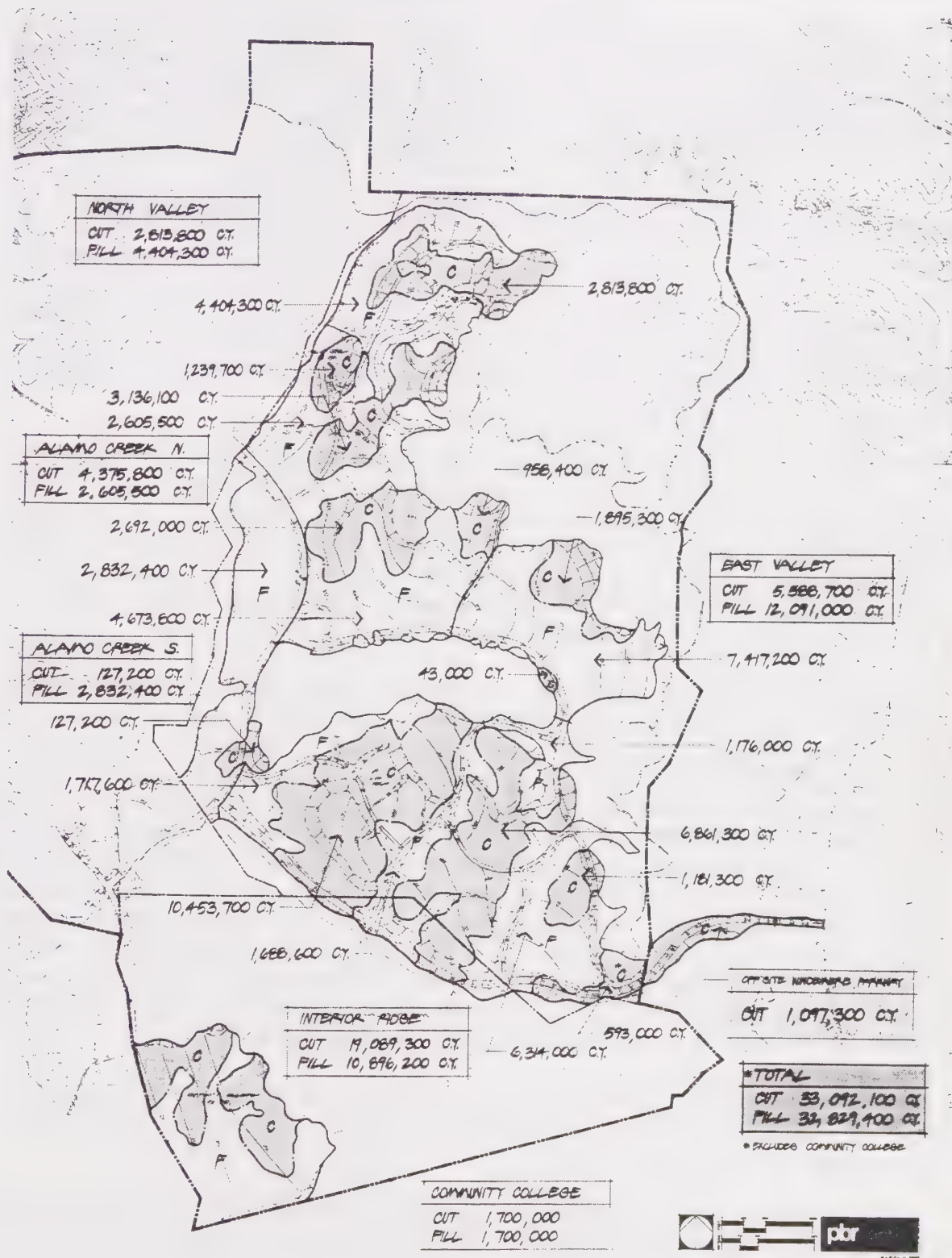


Figure 9-6. Cut/Fill Map of the Dougherty Valley Planning Area - Windemere

Source: PBR 1992

The colluvial and terrace deposits represent areas where the bedrock is mantled to an unknown thickness by surficial deposits. Within swales, such areas tend to have thick soil profiles, receive concentrated runoff, and may experience active soil creep and slippage. They may also be very sensitive to grading and development.

In addition to landslide mapping, the USGS has prepared a report titled *Relative Slope Stability and Land-Use Planning* (USGS 1979). This report includes a map that divides the San Francisco Bay Area into five slope stability categories that range from Category 1 (stable) to Category 5 (unstable). Most of the planning area is in Category 4 (moderately unstable), which includes areas of greater than 15% slope underlain by bedrock units susceptible to landsliding but not underlain by landslide deposits. The slide areas mapped by the USGS and areas where there is a high concentration of landslides are assigned to Category 5 (unstable).

Nilsen's slope stability map (USGS) is subject to the criticism that it is based on air photograph interpretation that has not been field-checked. CDMG released field-checked stability maps by Davenport in 1986 titled *Landslide Hazards in Parts of the Diablo and Dublin 7.5-Minute Quadrangle, Contra Costa County California*. The products of this study include maps of landslides and related features, landslide susceptibility, and relative debris flow susceptibility. Figure 9-7 shows the presents the CDMG landslide map. This map classifies slides both by activity status and type of deposit.

With regard to landslide hazards, susceptibility to debris flows requires the greatest caution in the development process because they are fast moving and present a risk of personal injury. Although debris flows tend to occur most frequently in areas where they have occurred in the past, they do not necessarily occur in the same places. There may be no geomorphic warning of their impending hazard. Experience indicates that the areas of highest debris flow susceptibility occur in steep drainage channels and swales, especially those with a considerable amount of sandy colluvium. Because most of the soils on the planning area are clayey, the risk of debris flow is not high. However, a considerable potential for earthflows exists, and the mapping of ENGEO and HTA identify areas where this type of slide exists in the planning area. In general, earthflows are relatively shallow and slow-moving. Consequently, they pose a hazard to property but do not represent a personal injury or life loss potential. However, deep-seated bedrock slides have been confirmed by ENGEO in the northeast portion of the planning area.














Landslides and colluvium deposits on the Shapell and Windemere properties were mapped by ENGEO in 1988 and 1989, and on the Camp Parks property by the Roma Design Group (EIP Associates 1991).

The landslide and colluvium areas have the potential for additional slope instability because land that has previously experienced landsliding is more slide-prone and sensitive to human-induced changes, such as grading, watering, removing or changing vegetation, and changing drainage patterns (Contra Costa County 1991). These areas of potential slope instability are shown in Figure 9-8 and described in detail below.



Figure 9-7.  
Landslides and Related  
Features of the Dougherty  
Valley Planning Area

LEGEND

-  Definite Landslide
-  Probable Landslide
-  Questionable Landslide
-  Small Landslide
-  Earthflow
-  Small Earthflow
-  Earthflow Complex
-  Debris Avalanche
-  Debris Avalanche/Debris Flow Scar
-  Multiple Debris/Avalanche/Debris Flow Scars
-  Creep
-  Incised Channel or Gully
-  Modified Slope Failure

Source: California Division of Mines &  
Geology 1986













Figure 9-8.  
Potential Areas of Slope  
Instability in the Dougherty  
Valley Planning Area

#### LEGEND

-  Landslide Deposits (Qls)  
(includes active and inactive)
-  Colluvium Deposits (Qc)
-  Developed Impact Area  
(Mass Grading)
-  Areas in Which Grading Will Be  
Limited to Development of  
Special Facilities

Off-Site Impact Area  
for Windemere Parkway  
Extension





**Colluvium.** Colluvium deposits (Q in Figure 9-8) consist of unconsolidated sand, silt, and clay on gentle to moderate slopes. Colluvium deposits are the result of soil creep, a slow, nearly continuous, gravity-induced downhill movement of the soil mantle. Because colluvial deposits typically occur in a weak, unconsolidated state, they can be susceptible to landsliding. Colluvial deposits are scattered throughout the planning area (ENGEO 1989). Approximately 105 colluvium deposits covering an area of 270 acres are found within the entire planning area.

**Landslides.** Aerial photograph analysis, supplemented by geologic reconnaissance mapping performed by ENGEO, indicates that several active and potentially active landslides occur in the planning area. The most common cause of landsliding is excess water caused by heavy rainfall or channelized water flows that occur near the end of the rainy winter period when surface soils are saturated. Earthquake-generated ground shaking, described below under "Ground Shaking", can also induce landslides.

The potential for landsliding and debris flow in the planning area ranges from low risk in the central planning area (Qal in Figure 9-2) and flat terrace areas (Qt in Figure 9-2) to more serious high-risk areas in the steeper, hilly areas (Pta and Mcu in Figure 9-2). Both active and inactive landslides are common in the western, northern, and eastern hilly areas surrounding the more level, relatively broad central planning area. Old landslides can be reactivated, and new landslides can be induced by poorly designed grading or concentrated runoff from new development in or near ancient landslide deposits (ENGEO 1988, 1989).

Approximately 145 landslide deposits (Qls in Figure 9-8) covering a total area of 640 acres are located in the planning area. Where development within or downslope of known active and inactive landslides deposits would occur, specific design considerations would have to be made, or in some cases, development should be avoided.

## **Seismicity**

The planning area is located in the seismically active zone of the Coast Ranges geomorphic province. As a result, earthquake hazards are a common occurrence in the region surrounding the planning area (Figure 9-9), as they are to most residents of California. Injury to people and damage to structures during earthquakes can be caused by actual surface rupture along an active fault or by ground shaking from a nearby or distant fault. These hazards and their effect on the planning area are described in detail below.

### **Surface Rupture**

No active or potentially active faults have been mapped in the planning area. Therefore, the risk of surface rupture in the planning area is unlikely.

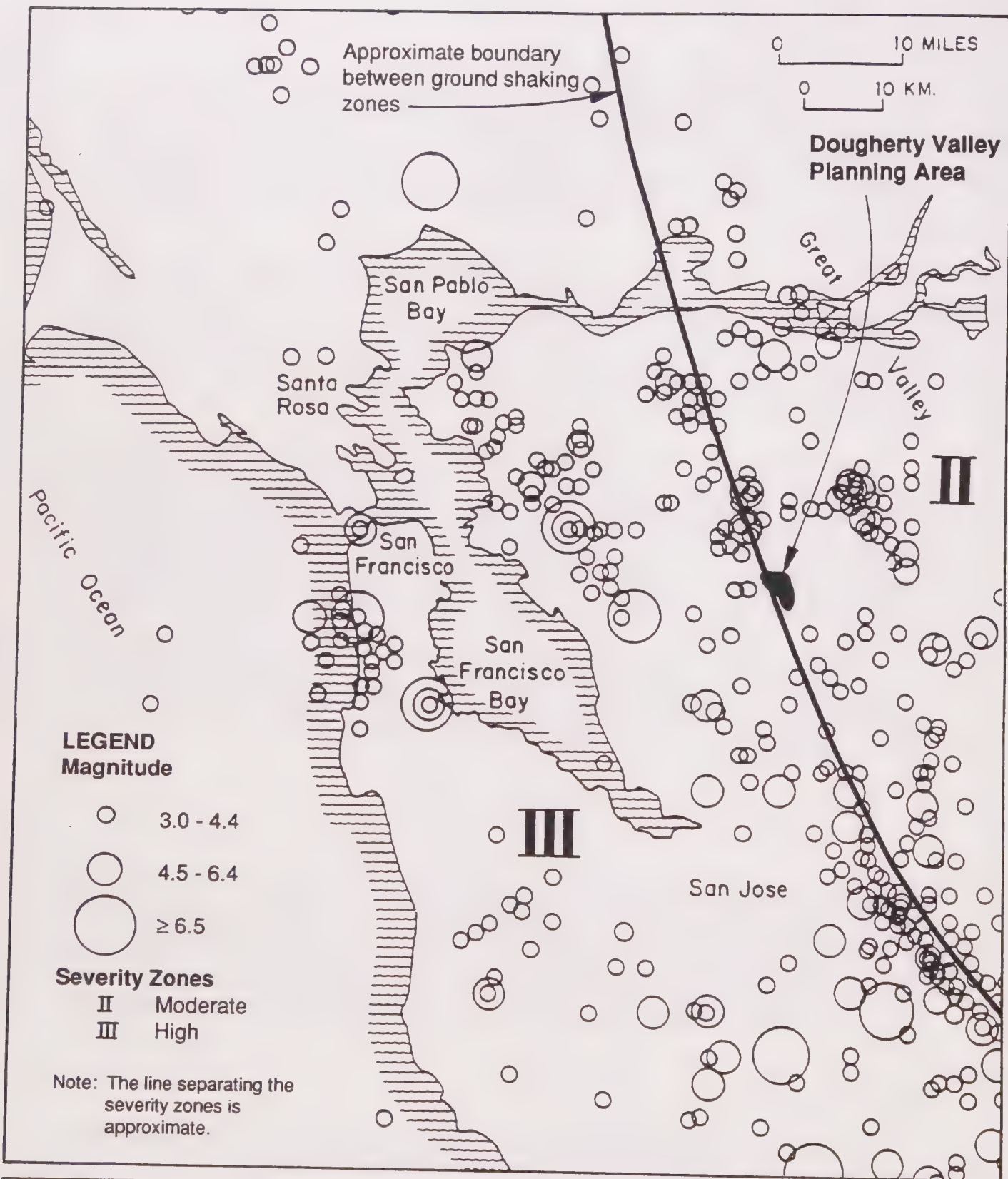


Figure 9-9. Regional Seismicity Map

Source: EIP Associates 1991

## **Ground Shaking**

Although the hazard of surface rupture is generally limited to the narrow strip of land immediately adjacent to an active fault, earthquake-induced ground shaking poses a more serious threat to people and structures in the planning area. Ground shaking at a particular location depends on several factors, including the following:

- earthquake magnitude (i.e., a measure of total energy released by the fault rupture),
- epicentral distance (i.e., the distance from the center of the fault rupture to the location of interest), and
- subsurface conditions of the geologic and soil units at the location of interest.

Earthquake magnitude is measured by the Richter Scale of arabic numbers, for which no theoretical maximum magnitude exists. The greater the energy released from the fault rupture, the higher the magnitude of the earthquake. Earthquake energy is most intense at the fault epicenter; the further an area is from an earthquake epicenter, the less likely that ground shaking will occur. Geologic and soil units comprised of unconsolidated, clay-free sands and silts can reach unstable conditions during ground shaking, which can result in extensive damage to structures built on them.

Ground shaking is described by using ground acceleration as a fraction of the acceleration of gravity, or by using the Modified Mercalli Scale, a more descriptive method involving 12 levels of intensity denoted by Roman numerals. Modified Mercalli intensities range from I (shaking that is not felt) to XII (total damage).

Based on the California Division of Mines and Geology's preliminary map of maximum expectable earthquake intensity in California, the planning area is located within Seismic Risk Zone III, where the severity and probable damage from nearby earthquakes is high (California Division of Mines and Geology 1973).

Most of the large historical earthquakes near the planning area have occurred along major faults to the west, including the San Andreas, Hayward, and Calaveras Faults. The closest known active fault to the Dougherty Valley planning area is the Calaveras Fault, approximately 3 miles southwest (Figures 9-10 and 9-11). The Calaveras Fault would cause the most severe ground shaking in the planning area, with a maximum credible magnitude of 7.3 and Modified Mercalli intensity of X (Table 9-2).

## **Liquefaction**

Liquefaction in soils and sediments occurs when granular material is transformed from a solid state to a liquid state as a result of increases in inter pore pressure generated by an earthquake. Earthquake-induced liquefaction most often occurs in low-lying areas



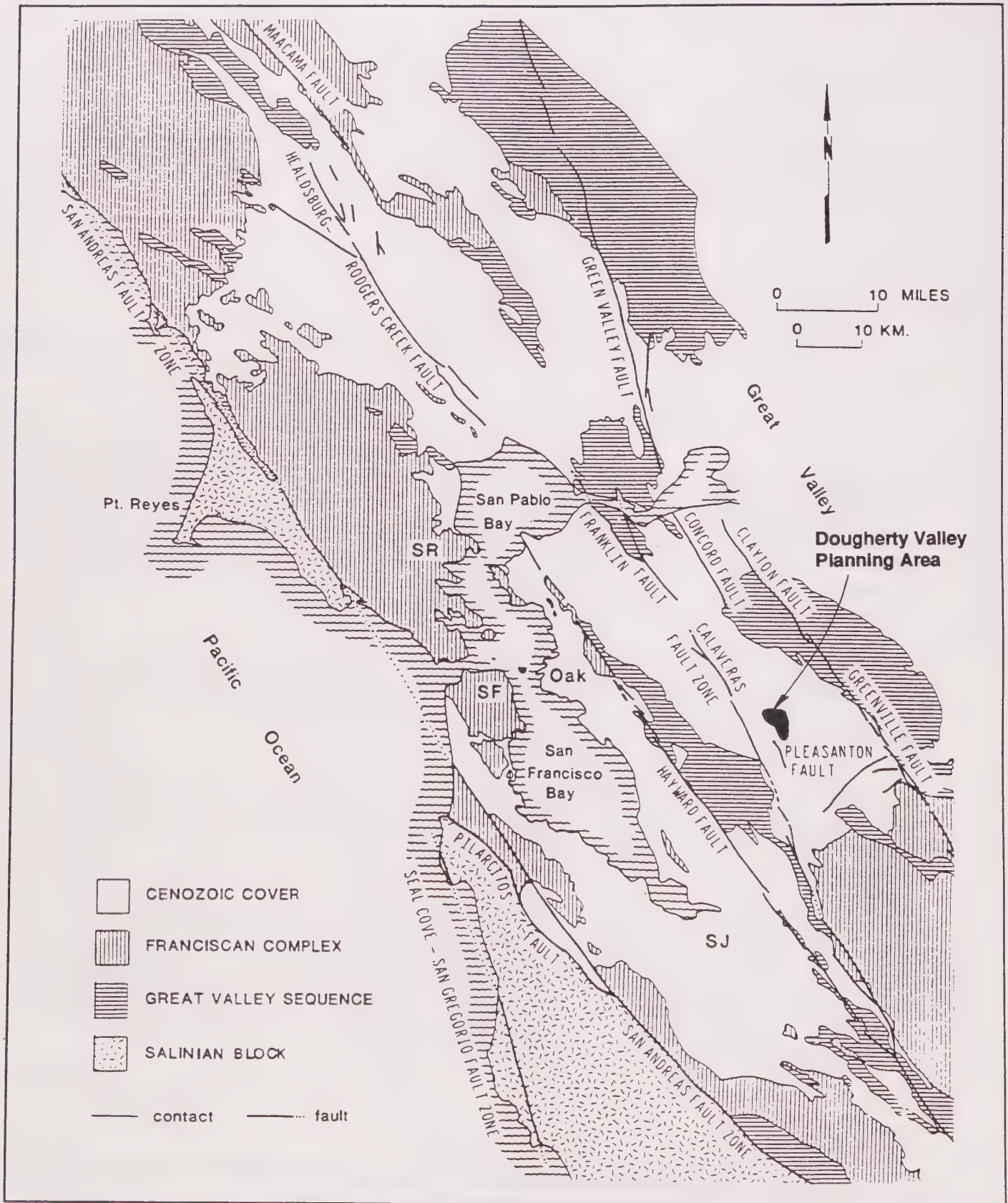
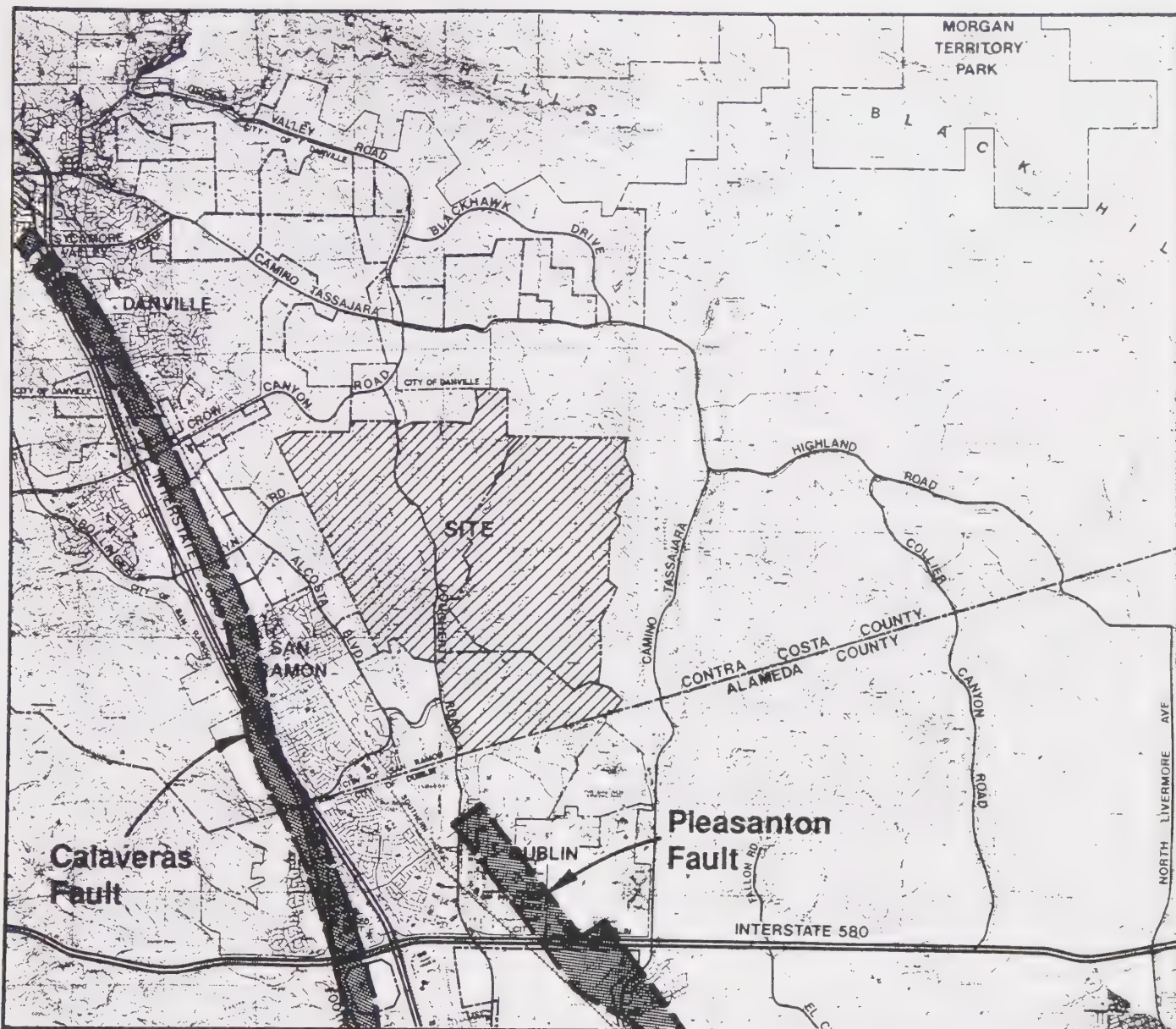


Figure 9-10. Regional Geology and Location of Faults

Source: EIP Associates 1991



## LEGEND



Alquist - Priolo Special Study Zones

Dougherty Valley Planning Area



0 8000 16000  
FEET

Figure 9-11. Alquist - Priolo Special Study Zones

Source: Contra Costa County General Plan and City of Dublin General Plan

Table 9-2. Effects of Nearby Earthquakes on the Dougherty Valley Planning Area

Abbreviated Fault Name	Approximate Distance from Planning Area		Maximum Credible Event			Maximum Probable Event		
			Maximum Credible Magnitude (Richter)	Peak Acceleration (gravity)	Intensity (Modified Mercalli)	Maximum Probable Magnitude (Richter)	Peak Acceleration (gravity)	Intensity (Modified Mercalli)
	Miles	Kilometers						
Calaveras	3	5	7.30	0.50	X	7.00	0.40	X
Green Valley	22	35	6.80	0.10	VII	6.20	0.06	VI
Hayward	13	20	7.30	0.21	IX	7.00	0.20	VIII
Healdsburg-Rog. Cr.	38	61	6.80	0.06	VI	6.40	0.04	VI
Rinconada-King C.	76	122	7.50	0.05	VI	6.00	0.01	IV
San Andreas-North	31	49	8.50	0.24	IX	8.00	0.17	VIII
San Andreas-Creep	66	106	7.00	0.04	V	6.00	0.02	IV
San Greg.-Hosgri	37	60	7.60	0.11	VII	7.00	0.07	VI
Antioch	12	20	6.20	0.11	VII	5.80	0.08	VII
Concord	10	16	6.50	0.16	VIII	5.70	0.09	VII
Greenville	4	6	6.50	0.25	IX	6.00	0.19	VIII
Las Positas	13	20	6.20	0.10	VII	5.50	0.06	VI
Maacama	69	112	7.20	0.04	VI	6.90	0.03	V
Sargent	45	72	7.00	0.06	VI	6.40	0.03	V
West Napa	38	61	5.70	0.02	V	5.50	0.02	IV

## Notes:

The Calaveras Fault is closest to the planning area: about 2.7 miles away.

Largest maximum credible planning area acceleration: 0.50 gravity.

Largest maximum probable planning area acceleration: 0.54 gravity.

Source: ENGEO Inc., 1989.



with soils or sediments composed of unconsolidated, saturated, clay-free sands and silts, but can also occur in dry, granular soils or saturated soils with some clay content.

Some of the soils and sediments in the Quaternary alluvium and terrace deposits (Qal and Qt in Figure 9-2) in the planning area are unconsolidated and could periodically have high water tables resulting in saturation. Computer modeling (Liquefy 2) performed on field and laboratory data for valley-floor sands near the northern boundary of the planning area indicates that these soils fall within the liquefiable range. Liquefaction could therefore occur during ground shaking in localized low-lying areas of the planning area (ENGEO 1988, 1989).

## **Soils**

### **General Soil Characteristics**

Figure 9-12 shows the soils located in the planning area. Most of the soils, including the Alo, Clear Lake, Cropley, Diablo, and Pescadero Series, consist of clays and loams formed from underlying bedrock, colluvium, and alluvium. Most of the soils have low strength and high shrink-swell potential, which present constraints to development. Each unit is described in more detail below.

### **Soil Units**

**Alo Clay (AaG).** Alo clay is found along the eastern boundary of the planning area and forms on very steep slopes (50%-75%). The series is well drained and has a high shrink-swell potential. Erosion hazard is high.

**Clear Lake Clay (Cc).** Clear Lake clay is found along Alamo Creek and other larger tributary channels in the planning area and forms on shallow slopes (0%-2%). The unit is poorly to moderately drained and has a high shrink-swell potential. No erosion hazard exists where the soil is tilled and exposed.

**Cropley Clay (CkB).** Cropley clay is found in small amounts along the southern boundary of the planning area and forms on small upland valleys of shallow slopes (2%-5%). The unit is moderately well drained and has a high shrink-swell potential. Erosion hazard is slight.

**Diablo Clay (DdD, DdE, and DdF).** Diablo clay comprises the majority of soil types in the planning area and forms on uplands ranging in slope from 9%-15% (DdD), 15%-30% (DdE), and 30%-50% (DdF). The soil is generally well drained and has a moderate to high shrink-swell potential. The erosion hazard is slight to moderate in the more shallow slopes (DdD), moderate in the moderate slopes (DdE), and moderate to high in the steep slopes (DdF).

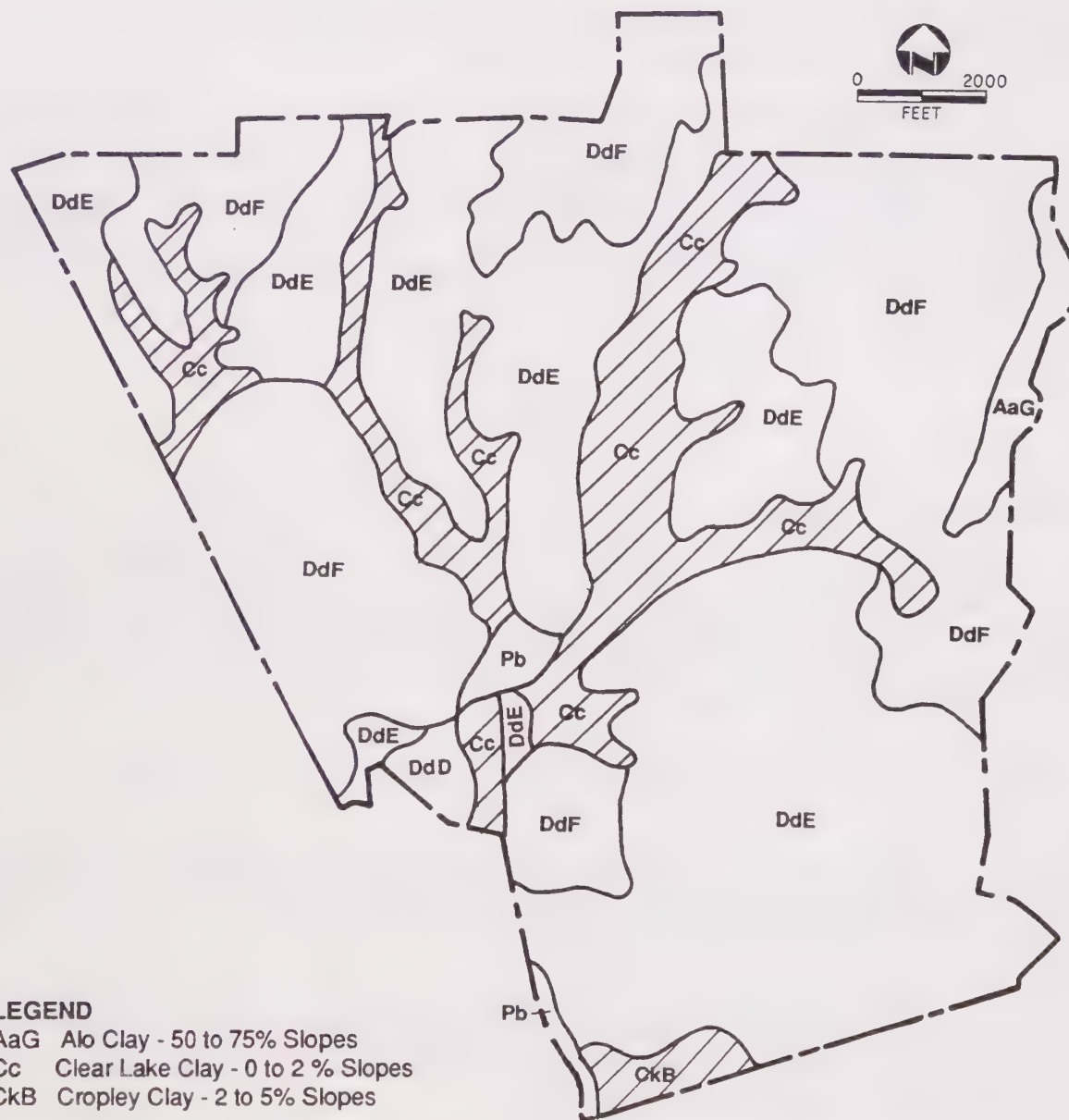


Figure 9-12. Soils of the Dougherty Valley Planning Area

Source: EIP Associates 1991; U.S. Soil Conservation Service 1977; Meyers pers. comm.

**Pescadero Clay (Pb).** Pescadero clay occurs in a small, isolated area along Alamo Creek near the southern boundary of the planning area. The soil is poorly drained with shallow slopes ranging from 0% to 2%. The shrink-swell potential is moderate to high and no erosion hazard exists.

## **Expansive Soils**

Expansive soils are a common source of moderate damage to houses and light structures in the regional San Francisco Bay Area, and clay-rich natural topsoil with a high shrink-swell potential is common on the hillsides and valleys of the planning area. Atterberg Limit tests made on surface samples of the planning area, and field observations indicate the expansive behavior of most of the soils. These clays contain Montmorillonite and other minerals that swell under wet conditions and shrink under dry conditions.

Damage to structures, such as cracking of foundations and pavement, could result from differential movement and several alternating periods of shrink and swell. Damage from expansive soils can usually be minimized or eliminated by using specific engineering foundations or using proper site grading and drainage techniques (ENGEO 1989).

## **Important Farmlands**

Approximately 2,000 acres of the planning area are considered "farmlands of local importance" to the California Department of Conservation. These farmlands are used primarily for grazing and dry grain farming. A more detailed discussion of important farmlands can be found in Chapter 4, "Land Use".

## **Relevant Contra Costa County General Plan Goals**

The Contra Costa County General Plan safety element identifies hazards that Contra Costa County must consider when making land use decisions. The purpose of the safety element is to ensure the protection of the community from any unreasonable risks associated with ground shaking, ground failure, slope instability, and other geologic hazards (Contra Costa County 1991). The safety element contains policies relevant to the project on ground shaking, liquefaction, ground failure, and landsliding. The applicable general plan policies are listed below:

- Policy 10-2: Significant land use decisions shall be based on a thorough evaluation of geologic, seismic, and soils conditions and risk.
- Policy 10-3: Structures for human occupancy shall be designed to perform satisfactorily under earthquake conditions.



- Policy 10-6: Structures for human occupancy, and structures and facilities whose loss would substantially affect the public safety or the provision of needed services, shall not be erected in areas where there is high risk of severe damage in an earthquake.
- Policy 10-18: Urban and suburban development in areas susceptible to high liquefaction shall be discouraged unless satisfactory mitigation measures can be provided.
- Policy 10-19: To the extent practicable, the construction of critical facilities structures involving high occupancies, and public facilities shall not be sited in areas identified as having a high liquefaction potential.
- Policy 10-20: Any structures permitted in areas of high liquefaction potential shall be sited, designed, and constructed to minimize the dangers of damage from earthquake-induced liquefaction.
- Policy 10-21: Approvals to allow the construction of public and private development projects in areas of high liquefaction potential shall be contingent on geologic and engineering studies which define and delineate potentially hazardous geologic and/or soils conditions, recommend means of mitigating these adverse conditions; and proper implementation of the mitigation measures.
- Policy 10-29: Significant hillsides with slopes of 26% or more shall be considered unsuitable for types of development which require extensive grading or other land disturbance.
- Policy 10-30: Development shall be precluded in areas when landslides cannot be adequately repaired.

## **IMPACTS AND MITIGATION MEASURES ASSOCIATED WITH THE SPECIFIC PLAN**

### **Methodology and Significance Criteria**

#### **Methodology**

The impacts evaluated in this section were assessed based on previously published reports by the California Division of Mines and Geology and geologic reconnaissance reports of the Shapell and Windemere properties prepared by ENGEO (1988, 1989), an evaluation of the grading concept plan, and the safety element of the Contra Costa County General Plan.

## **Significance Criteria**

The following criteria were used in determining the level of significance of an environmental impact. The significance criteria was developed based on Appendices G and I of the State CEQA Guidelines and professional practice. The project would result in a significant impact if it would:

- destroy, cover, or modify any unique geologic physical feature;
- expose people, structures, or property to major geologic hazards, including earthquakes and ground failure;
- result in disruptions, displacements, compaction, or overcovering of the soil;
- result in a substantial change in topography or ground-surface relief features;
- result in changes in siltation, deposition, or erosion that could modify the channel of a river or stream;
- increase wind or water erosion of soils, either on or off the site;
- be located in substrate that contains material subject to liquefaction or other secondary seismic hazards from ground shaking;
- be located in soils with high shrink-swell potential;
- be located in material susceptible to landsliding;
- be located within Seismic Risk Zone II or III.

## **Key Assumptions**

The following assumptions were used to identify project-related geologic impacts:

- Extensive development and grading will not occur in the areas that are not designated in the preliminary grading plan (Figure 9-3).
- The project proponents will implement mitigation measures according to the timing mechanisms identified in the measures.
- The project proponents will prepare additional geotechnical investigations to assess the liquefaction potential of sediments underlying the planning area and implement the precautionary recommendations of the investigations prior to County staff approval of the preliminary development plan pursuant to County Code Title, Article 84.

- A Geologic Hazard Abatement District could be formed at the discretion of the Contra Costa County Board of Supervisors to establish funding mechanisms for any remedial work required after a project is constructed for landslides or other land disturbances in graded areas.

### **Project-Related Impacts**

#### **Impact: Substantial Change in Topography from Grading Operations**

Implementing the proposed project would result in a substantial change in topography. Based on the preliminary grading plan, a total of 62.5 million cubic yards of excavation and 62 million cubic yards of fill would be required (Table 9-1). The cutting and filling operations could create unstable earth conditions, which could lead to increased erosion and deposition in the planning area and offsite areas downstream.

This impact is considered significant because unstable earth conditions and increased erosion can cause damage to structures and threaten the safety of people.

#### **Mitigation Measure**

- 9.1: The project proponents should prepare a detailed grading plan that specifies areas to be graded and shows earthwork balances to be included in the Preliminary Development Plan. These design-level studies should be based on geotechnical criteria provided by the geotechnical engineer for the project.

The grading plan should be reviewed and approved by the County geologist or an engineering geologist acting on behalf of the County prior to the County's approval of the Preliminary Development Plan. The grading plan should be incorporated into a final grading concept plan for each Neighborhood Development Plan. The final grading concept plan should be prepared at a scale of 1 inch = 100 feet and should be consistent with the preliminary grading plan. The final grading concept plan should be reviewed and approved by the County geologist before final grading approval by County staff.

Implementing mitigation measure 9.1 would reduce this impact to a less-than-significant level because the grading plan would ensure that grading in the planning area would conform to County standards and not subject people or structures to hazardous conditions.



## **Impact: Potential for Structural Damage and Injury to People from Development in Areas Susceptible to Landsliding and Slope Failure**

Portions of the planning area shown for development are susceptible to landsliding and slope failure. As shown in Figure 9-7, several areas of the northern planning area have experienced or are currently experiencing landsliding and soil creep with colluvial deposits. Old landslides can be reactivated, and new landslides can be induced by poorly designed grading or concentrated runoff from new developments in or adjacent to inactive landslide deposits. Approximately 105 colluvium deposits covering an area of 270 acres and 145 landslide deposits covering a total area of 640 acres are found within the entire planning area (Figure 9-8).

This impact is considered significant because landslides can cause substantial damage to structures and threaten the safety of people.

### **Mitigation Measures**

- 9.2: The project proponents should avoid construction on large landslide and colluvial areas, as described in the geotechnical reconnaissance reports prepared for the Shapell and Windemere properties (ENGEO 1988, 1989).

or

- 9.3: The project proponents should stabilize the landslide and colluvial deposits that present a hazard to development using corrective grading techniques aimed at achieving long-term stability. This stabilization process would:
  - provide substantial drained and compacted buttress fills with flat benches to intercept potential debris flow from higher elevations and
  - use mass grading techniques to lower and flatten existing steep slopes that present a hazard to areas planned for development.

The stabilization methods should be included in the Neighborhood Development Plan for each area to be developed that contains landslide deposits or unstable colluvium. The stabilization methods should be consistent with the final grading concept plan and reviewed and approved by a staff geologist before approval of the Final Development Plan by County Staff.

- 9.4: The project proponents should form or participate in any existing Geologic Hazard Abatement Districts to establish funding mechanisms for any remedial work required after a project is constructed for landslides or other land disturbances in graded areas.

Implementing mitigation measure 9.2 or 9.3 and 9.4 would reduce this impact to a less-than-significant level because the risk of landsliding and slope failure would be minimized by project grading design, subject to approval by the County.

**Impact: Potential for Injury to People in Open Space and Park Areas Susceptible to Slope Instability**

Areas of the planning area that are susceptible to slope instability are proposed for open space and park designation. Although limited grading and development is proposed for these designated areas, future recreationists using the areas could be exposed to danger if sudden ground failure occurred.

This impact is considered significant because the unstable slopes could fail and could reactivate and cause injury to people. However, the probability of such a slope failure resulting in injury is considered remote because the affected areas would be used generally for recreation purposes.

**Mitigation Measure**

- 9.5: The project proponents should prohibit access to identified debris flow areas in designated open space and park areas.

Implementing mitigation measure 9.5 would reduce this impact to a less-than-significant level because people would not have access to identified debris flow areas but certain recreational and aesthetic values of the project would be compromised by this measure.

**Impact: Minor Potential for Structural Damage and Injury from Development in Seismic Risk Zone III**

Implementing the project would result in continued urban development adjacent to Seismic Risk Zone III, a zone of high earthquake severity where damage to structures from ground shaking caused by earthquakes would be major. Structures not built according to seismic safety standards are more susceptible to damage than structures built according to these codes, and would therefore increase the risk of injury to people.

The risk of injury to people and damage to structures from ground shaking in the planning area as a result of nearby earthquake activity is substantial. Maximum credible earthquake intensities on the modified Mercalli Scale would be as high as X (Table 9-2), which would cause substantial damage.

Although unrestricted development in Seismic Risk Zone III could expose people and structures to geologic hazards, compliance with the Uniform Building Code (UBC) and

policy 10.3 of the Contra Costa County General Plan safety element would ensure that risk of injury and damage would be minimized.

This impact is considered less than significant because the project is expected to comply with policy 10.3, which requires that structures for human occupancy be designed to perform satisfactorily, and it is assumed that the project proponents would comply with the requirements of the UBC.

### **Mitigation Measure**

No mitigation is required because policy 10.3 of the Contra Costa County General Plan safety element ensures that the risk of structural damage and injury to people resulting from development in Seismic Zone III would be minimized.

### **Impact: Potential for Structural Damage and Injury to People from Development on Materials Susceptible to Liquefaction**

Building structures on materials susceptible to liquefaction poses a greater safety risk than in areas where materials would not likely liquefy. Quaternary alluvium and terrace deposits are the geologic units in the planning area that would most likely liquefy. To accurately determine liquefaction potential for a particular site, the area must be drilled to subsurface depths of at least 30 feet. Only through subsurface soil analysis can liquefaction potential for a specific site be determined.

This impact is considered significant because development in these low-lying areas could result in substantial structural damage and injury to people.

### **Mitigation Measure**

- 9.6: The project proponents should prepare a detailed geotechnical report, which includes borings, to evaluate the hazard of liquefaction. If liquefiable soils are present, the report should identify measures to prevent liquefaction and grading plans should be developed that implement those recommendations.

The report should identify site-specific areas that are susceptible to liquefaction based on subsurface analysis. The report should be reviewed and approved by the County geologist before County approval of the Preliminary Development Plan.

Implementing mitigation measure 9.6 would reduce this impact to a less-than-significant level because areas susceptible to liquefaction would be identified and engineering solutions would be applied to avoid injury to people or structural damage caused by liquefaction.



### **Impact: Potential for Increased Short-Term and Long-Term Soil Erosion Rates from Development on Soils with Moderate to High Erosion Hazards**

Implementing the project would result in construction activities that would involve ground breaking and lead to at least temporary increased soil erosion rates until vegetation becomes reestablished, especially Alo Clay and Diablo Clay. Soil erosion is an ongoing natural process in the planning area, and streams and tributaries currently display active gullying and rilling. Increased soil erosion rates caused by development can lead to unstable ground surfaces, especially in soils with moderate to high erosion hazards. Increased sedimentation could occur in nearby streams and rivers, resulting in a threat to public health and safety.

This impact is considered significant because active soil erosion can cause damage to structures and increase sedimentation in nearby streams and rivers, adversely affecting flood control facilities and water quality.

#### **Mitigation Measure**

- 9.7: The project proponents should prepare an erosion control and rehabilitation plan (ECRP) to control short-term and long-term soil erosion and sedimentation in nearby streams and rivers.

The site-specific, detailed features of the ECRP should be incorporated into the Final Development Plan and reviewed and approved by the County geologist before grading approval by County staff. The ECRP should include, but not be limited to, the following elements as required by the DVSP:

- goals for grading, stabilization, and revegetation consistent with the final grading concept plan;
- species lists, planting density, and irrigation requirements for restored areas;
- locations of all areas where vegetation will be removed;
- methods to stabilize these areas;
- locations of areas to be revegetated and types, quantities, and methods of seeding, mutating, planting, fertilizing, and irrigating planted areas;
- methods to reduce runoff across cut-and-fill slopes and other graded areas;
- location and function of sediment traps and debris basins, methods of using the proposed detention basins as sediment traps during construction, provisions for removing sediment after construction, disposal locations and provisions for long-term maintenance, location and type of temporary measures such as hay bales, earth berms, sand-bagging, or silt fences; and

- a schedule for implementation so that all erosion control measures will be installed and maintained throughout the rainy season of each construction year.

Implementing mitigation measure 9.7 would reduce this impact to a less-than-significant level because it would ensure that soil erosion would be minimized through use of erosion control practices, subject to approval by the County.

#### **Impact: Potential for Structural Damage from Development on Soils with High Shrink-Swell Potential**

Implementing the project would result in urban development on soils with moderate to high shrink-swell potential. Expansive soils are a common source of foundation damage, and differential settling.

This impact is considered significant because building on soils with high shrink-swell potential could result in structural damage.

#### **Mitigation Measure**

- 9.8: The project proponents should use special design criteria for structures built on soils with high shrink-swell potential. The design could include features such as the following:
  - extending building foundations to below the zone of moisture fluctuation with deep footings or drilled piers,
  - replacing the expansive top soil with a layer of select fill material with low expansion potential, or
  - laying rigid mat or slab foundation designed to resist the fluctuations associated with the soil expansion.

Implementing mitigation measure 9.8 would reduce this impact to a less-than-significant level because the threat to structures would be minimized through use of the recommended engineering practices, subject to approval by the County.

#### **Impact: Grading on Hillsides with Slopes of 26% and Greater**

Contra Costa County General Plan policy 10-29 restricts extensive grading of slopes of 26% and greater. Although most steep areas are designated as open space, Figure 9-4 indicates that the proposed grading plan associated with the DVSP would result in some grading of areas with slopes of 26% and greater.

Policy 10-29 was designed as an interpretive policy and intended to be flexible in areas within the urban limit line, such as those in the Dougherty Valley planning area is located (Cutler pers. comm.). In addition, the grading plan for the planning area was developed to maximize large contiguous open space areas and to cluster development to avoid those open space areas. Grading slopes of 20% or greater for such purposes is considered suitable to achieve overall project objectives.

This impact is considered significant because the project could result in extensive grading of slopes of 26% and greater.

### **Mitigation Measure**

- 9.1: This mitigation measure is described above.

Implementing mitigation measure 9.1 would reduce this impact to a less-than-significant level because it would ensure that grading in the planning area would conform to the County general plan and grading standards.

### **Impact: Development of Windemere Parkway Extension on Potentially Unstable Land East of the Planning Area**

**Impact.** The proposed alignment of the Windemere Parkway east of the planning area traverses a relatively steep hillside area that is underlain by weakly consolidated, non-marine sedimentary rocks consisting chiefly of claystone and siltstone. Although there is no evidence of deep-seated landslides, there is evidence of springs, soil creep, and sloughing. Moreover, no information is available on the engineering geology of bedrock in the area of the major cuts and fills. Similarly, the stability of the creekbank in the area of the road crossing is uncertain.

Figure 9-13 presents a conceptual grading plan for the segment of Windemere Parkway between the east boundary of the planning area and its intersection with Camino Tassajara. This plan shows the road gradient, limit of cut and fills, and location of the proposed crossing of Tassajara Creek. Cut slopes within this segment of the road have a proposed gradient of 2:1 (horizontal to vertical). The maximum height of a cut slope is approximately 70 feet; the maximum height of fill slopes is 55 feet. At the creek crossing, the creek is 100 feet wide at the top of the bank and the channel depth is approximately 35 feet at this point. Although the design of the crossing has not yet been determined, it will be required to comply with the engineering standards of the Public Works Department and environmental requirements of other regulatory agencies (e.g., DFG).

This impact is considered significant because unstable earth conditions and increased erosion could cause damage to the road and threaten the safety of people.



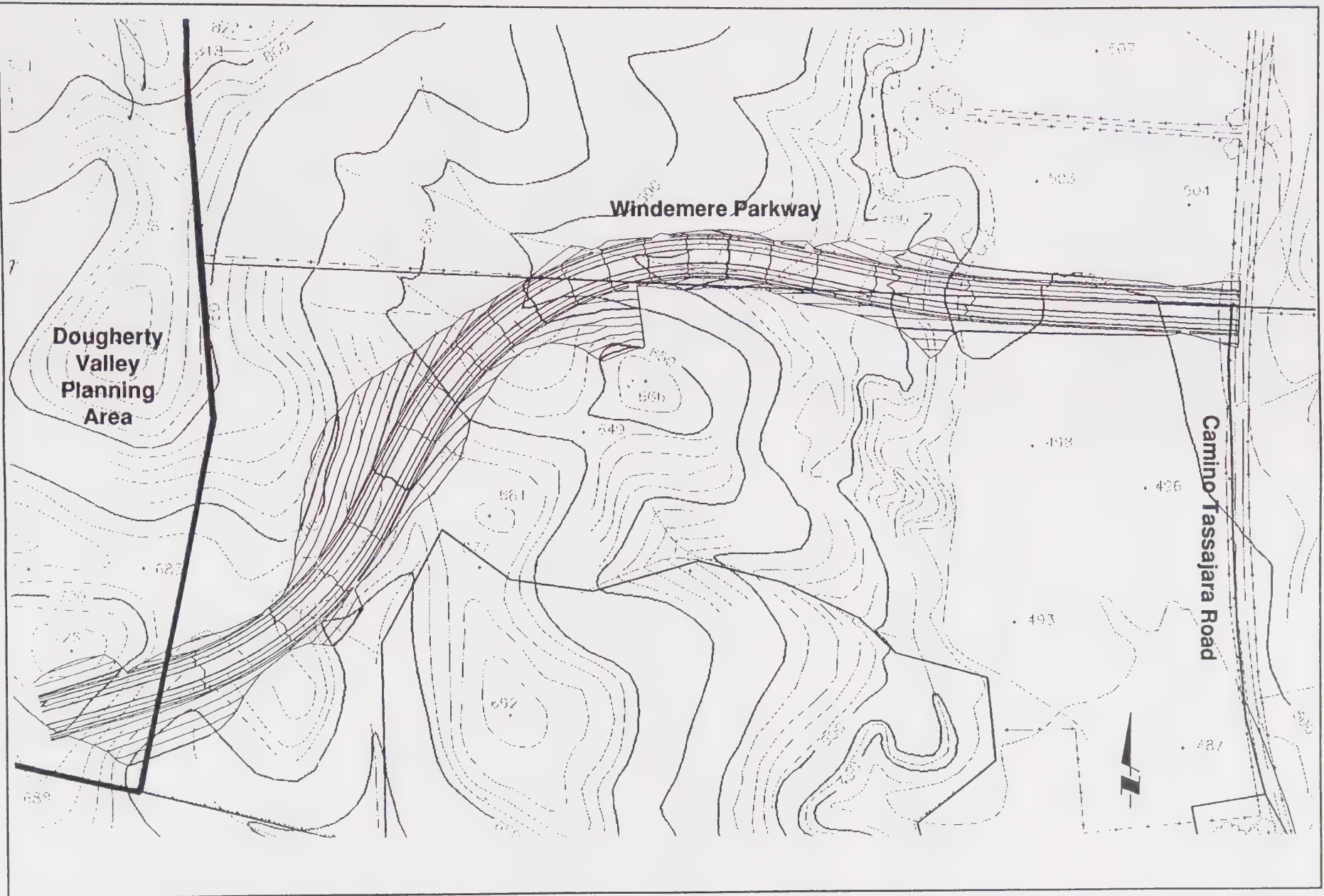


Figure 9-13. Conceptual Grading Plan for Windemere Parkway Extension

Source: Foreman pers. comm.

## **Mitigation Measure**

- 9.9 The project proponents should design the Windemere Parkway extension based on a grading plan and engineering geotechnical study prepared as part of grading plans for the Windemere property under mitigation measure 9.1. The Windemere Parkway extension grading plan should be reviewed and approved by the County geologist or an engineering geologist acting on behalf of the County prior to the County's approval of the Preliminary Development Plan for the Windemere property.
- 9.2-9.4: These mitigation measures are described above.

Implementing mitigation measure 9.9 and 9.2-9.4 would reduce this impact to a less-than-significant level because the risk of damage to the road would be minimized by the project grading design and by stabilization techniques, subject to approval by the County.

### **Impact: Development of Water, Wastewater, and Recycled Water Infrastructure on Potentially Geologically Unstable Land Within and adjacent to the Planning Area**

Water, wastewater, and recycled water distribution, pumping, storage, and collection facilities are planned for locations on or near unstable lands that may be subject to landslides, shrink-swell, liquefaction, and other geologic hazards. Most of these facilities are planned for areas that would be mass graded and stabilized for development. However, certain water storage reservoirs and water lines are planned for locations on undeveloped open space lands that may be subject to faulting, slope instability, landslides, and related geologic constraints. The conceptual locations of most of these facilities are shown on Figures 3-11, 3-12, and 3-13. Access road locations have not yet been determined. These conceptual infrastructure locations have been compared to the mapped locations of geologic constraints shown on Figures 9-1, 9-4, and 9-7.

The potable water system facilities to be located on open space land are indicated in Figure 3-10 and include Reservoir C (and potentially its access road) and would be located on the eastern ridge on hill above  $\pm 1,034'$  (see Figure 9-2 for location), at the top of a mapped landslide. The 14" distribution lines from Reservoirs R3 and R4 and potentially their access roads would also cross mapped landslides.

The recycled water distribution system facility to be located on open space land that could be affected by these geologic constraints is shown in Figure 3-11. Reservoir R5 (and potentially its access road), which would be located on the east-central ridge on hill  $+817'$  (see Figure 9-2 for location), at the top of a mapped landslide, and its 18" distribution line, which would be located down the face of this landslide. The alternate reservoir location on the eastern ridge appears to be free of mapped geologic constraints.

The wastewater collection system facility to be located offsite on undeveloped land is the 24-inch collection line that brings project wastewater to the proposed Fallen Leaf

Pumping Station, which would cross a mapped landslide just east of Alcosta Boulevard and a buried fault located approximately along Alcosta Boulevard (Figure 3-12).

This impact is considered significant because unstable earth conditions could cause damage to potable water, wastewater, or recycled water infrastructure, and disrupt services, and cause a potential threat to the safety of people.

#### **Mitigation Measure**

- 9.10 The project proponents should design all potable water, wastewater, and recycled water infrastructure to be located on undeveloped open space based on a grading plan and engineering geotechnical study prepared as part of grading plans under mitigation measure 9.1. The grading plan should be reviewed and approved by the County geologist or an engineering geologist acting on behalf of the County prior to the County's approval of the Preliminary Development Plan for the affected property.
- 9.2-9.4: These mitigation measures are describe above.
- 15.31: This mitigation measure is described in Chapter 15, "Visual Quality".

Implementing mitigation measures 9.10, 9.2-9.4, and 15-31 would reduce this impact to a less-than-significant level because the risk of damage to the road would be minimized by the project grading design, by stabilization techniques, and by sensitive environmental design to reduce visual impacts, subject to approval by the County.

**Mitigation.** During the routine processing of the tentative subdivision maps, final maps, and grading plans, the County Ordinance Code makes requirements for geologic and geotechnical studies. Additional analysis is required during grading. Although geologic hazard maps issued by the USGS suggest the alignment is feasible, site-specific studies of the alignment are needed. They should be performed concurrent with the design-level studies for Windemere's first phase of development.





## **Chapter 10. Hydrology and Water Quality**

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### **SETTING**

#### **Climate**

The Dougherty Valley planning area has a Mediterranean climate with warm, dry summers and mild, wet winters. Average annual rainfall varies from about 17.5 inches to 20 inches. Rainfall occurs primarily between November and April. Snowfall is extremely rare.

#### **Drainage**

The Dougherty Valley planning area is comprised of about 6,000 acres and is drained by Alamo Creek, the west branch of Alamo Creek, and the several tributary creeks and swales within the Alamo Creek watershed. Most of the planned development lies in the Alamo Creek watershed, with a small portion of the development in the Coyote Creek watershed to the west. Coyote Creek drains into South San Ramon Creek, which then enters Alamo Creek downstream of the planning area. Figure 10-1 shows the local drainages in the planning area.

Alamo Creek has been channelized downstream of the planning area and is referred to as the Alamo Canal. At I-680, this canal joins Arroyo del Valle and is called Arroyo de las Lagunas. Arroyo de las Lagunas then flows into Alameda Creek, turns west through Niles Canyon, and discharges into the South San Francisco Bay. Figure 10-2 shows the major drainages of the region in relation to the planning area.

Most of the planning area consists of moderate to steep hills, and cattle grazing is the predominant land use. A large ranch complex is located in the south-central portion of the planning area. All the drainages in the planning area are ephemeral. The area drains by overland flow, channelized flow, and shallow groundwater flow, which ultimately discharges into the main channels or is lost to evaporation, evapo-transpiration (ET), or underlying shallow groundwater systems. Shallow groundwater tables discharge locally in swale during winter. Underlying bedrock formations tend to act as barriers to downward migration of water, causing localized ephemeral seeps and wet areas within the planning area (EIP Associates 1991).

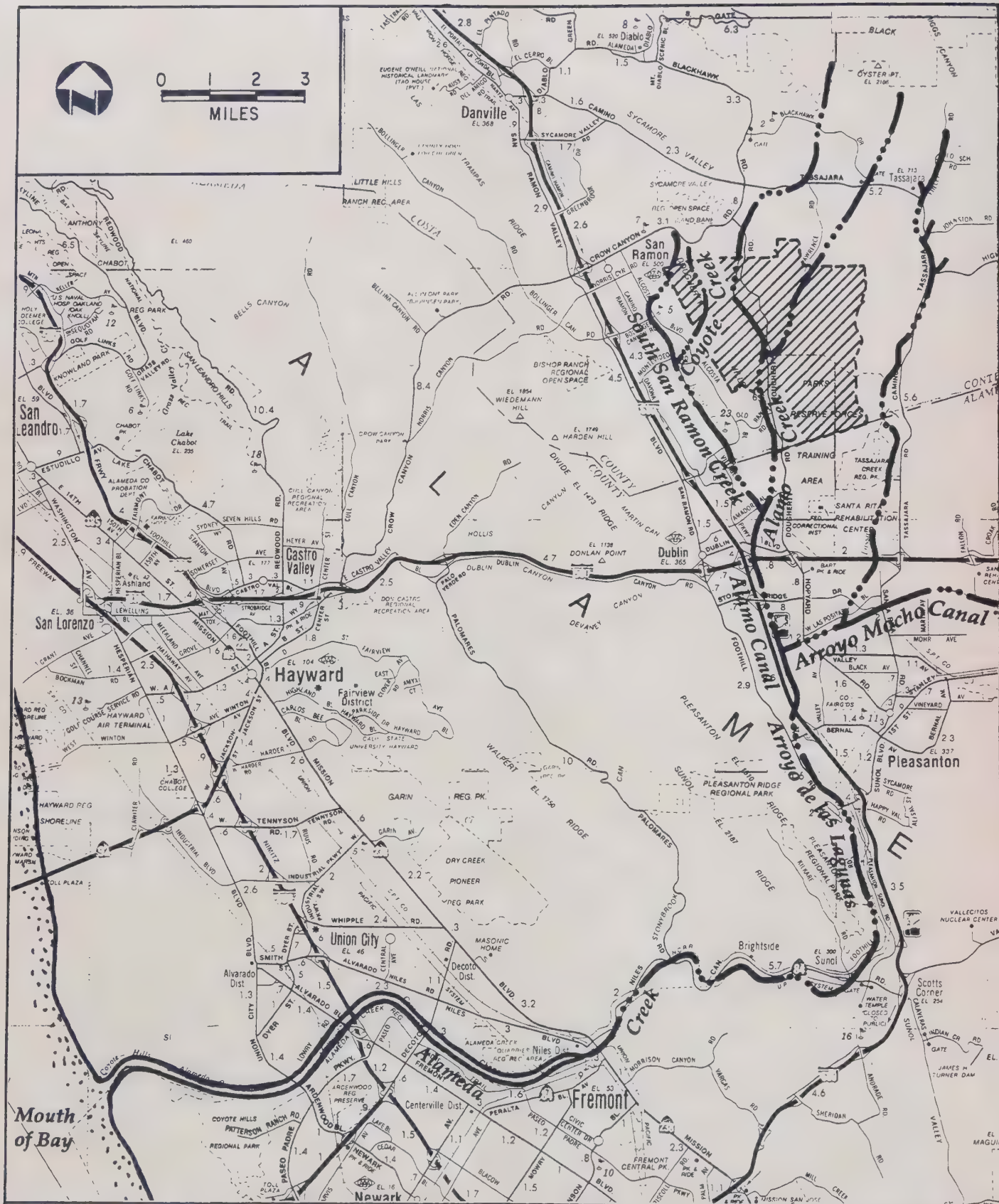


Figure 10-2. Regional Hydrologic Setting for the Dougherty Valley Planning Area

Source: EIP Associates 1991



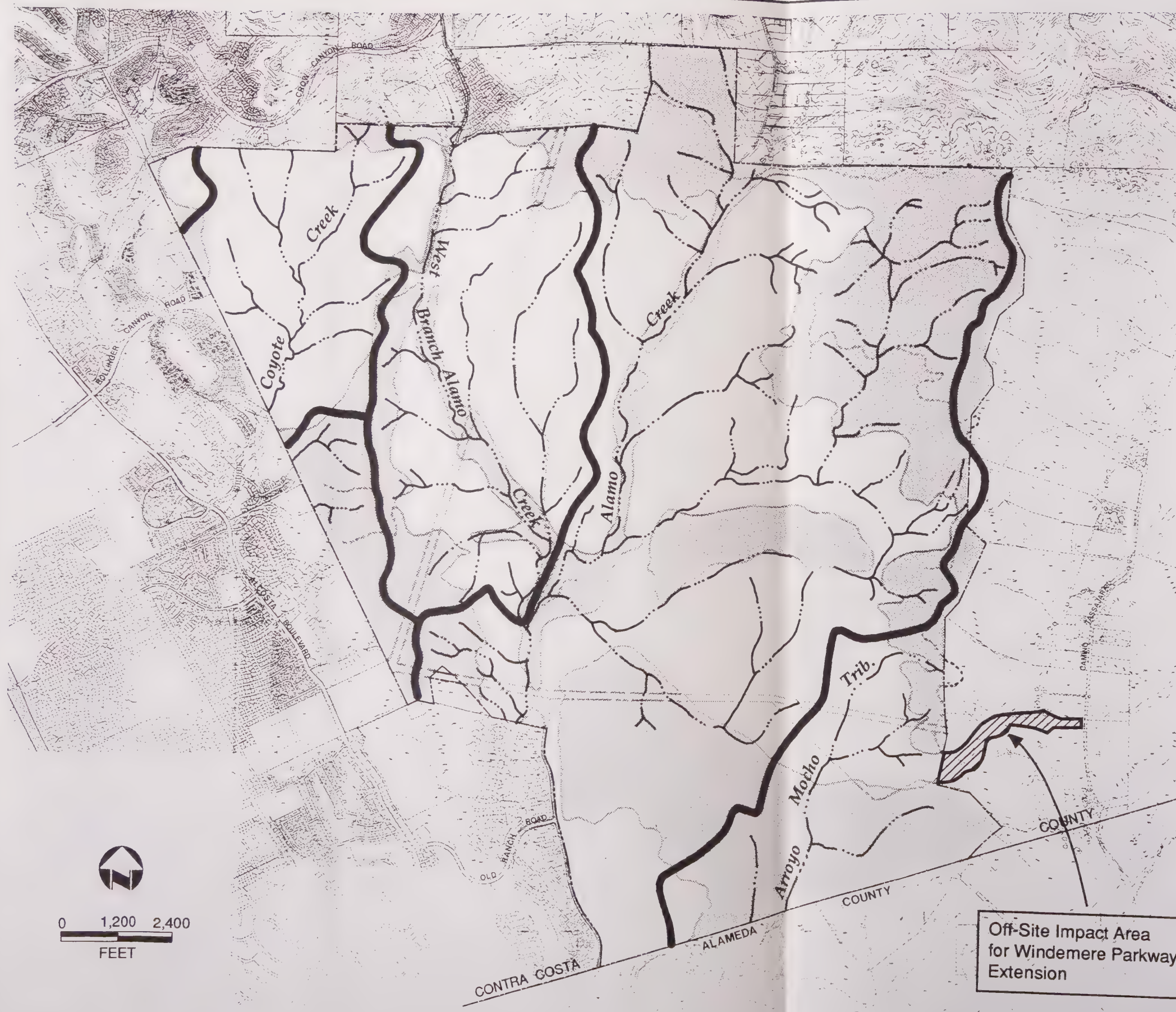




Figure 10-1.  
Watersheds and Drainages  
for the Dougherty Valley  
Planning Area

#### LEGEND

-  Developed Impact Area  
(Mass Grading)
-  Areas in Which Grading Will Be  
Limited to Development of  
Special Facilities

Off-Site Impact Area  
for Windemere Parkway  
Extension





The soils within the planning area are primarily clays with high shrink-swell potential, and with high erosion hazard where bare soil is exposed. Historical overgrazing, steep slopes, upper watershed development and erodible soils have led to extensive downcutting, gullyng of channels, and bank failures caused by slumping. Many of the drainage channels within the planning area are now deeply incised with erosive banks. This downcutting process has been progressive, and the erosion produces large quantities of sediment that deposit to portions of stream reaches within and downstream of the planning area.

A characteristic of downcutting is that it tends to progress upstream throughout the watershed. Thus, different portions of the watershed may be experiencing different erosion rates. Lower reaches may appear stable while extensive erosion is still occurring in the upper watershed.

Another characteristic of downcutting is that once initiated, the process will persist for a long time until a new channel equilibrium is established. Channel downcutting can be halted when a channel encounters erosion resistant bedrock, by constructing grade control structures, or regrading the channel on flatter slopes.

Because of the steep channel slopes of the planning area, sediment from the planning area is transported offsite during major flood events. Sediment deposition in culverts and some reaches of channels has probably occurred offsite. Downstream offsite channels are periodically maintained by Alameda County.

## **Flooding**

Contra Costa County has been mapped by the Federal Emergency Management Agency (FEMA) as part of the National Flood Insurance Program in 1987. A review of this flood insurance rate map at the planning area indicates overbank flooding under existing conditions, particularly where Alamo Creek meets the west branch, for the 100-year flood event (Federal Emergency Management Agency 1987). The methodologies used in developing these floodplains were designated as approximate level by FEMA. Figure 10-3 shows the FEMA-approved 100-year floodplain within the planning area.

Because the approximate-level analysis is not accurate enough for project development planning, a more detailed, independent 100-year floodplain determination for existing conditions was developed by Philip Williams and Associates in 1991. This study used the Corps-approved HEC-1 hydrologic model to route the 100-year rainfall runoff through the existing Dougherty Valley watershed. The SCS synthetic unit hydrograph approach was selected to convert rainfall to runoff. The results of this study indicated a preproject 100-year floodflow in Alamo Creek at the downstream planning area boundary of 3,902 cubic feet per second (cfs) (EIP Associates 1991).

The results of both the 1987 FEMA approximate-level analysis and the Philip Williams analysis show that overbank flooding occurs in some portions of the planning area in a 100-year flood event. The FEMA study shows shallow overbank flooding occurring over



flat terraces on the west and main branches of Alamo Creek. The Philip Williams study indicates that overbank flooding may only occur in the west branch (EIP Associates 1991). Additional cross-sectional surveys throughout the channels would be needed, however, to validate or amend these preliminary findings.

Upstream of the planning area, the main branch of Alamo Creek has a watershed area of 2,443 acres, and the west branch drains 2,981 acres. Extensive development is occurring or planned in these watersheds. To partially mitigate the increased runoff from developing areas, the Contra Costa County Public Works Department built a flood detention basin on the west branch (just above Tassajara Road). This basin, referred to as the Bettencourt Basin, has a capacity of 50 acre-feet (af) and would reduce peak flows during a 12-hour design storm from 1,557 cfs to 901 cfs based on a basin routing study performed by CCCFCWCD. Downstream of this basin, the channel of the west branch of Alamo Creek was relocated. The reconstructed channel was designed in accordance with performance standards developed by CCCFCWCD. The new channel has been extensively planted with riparian species. (EIP Associates 1991.)

Downstream of the planning area, Alamo Creek has been modified into a large, trapezoidal, flood control channel. The Alameda County Flood Control and Water Conservation District (ACFCWCD) has indicated that this channel has been sized to contain the 100-year flow of 4,670 cfs, as estimated by Bissel and Karn in 1984. The ACFCWCD requires that the 100-year peak runoff not exceed 4,670 cfs in Alamo Creek at the County line (Van Katwyk pers. comm.).

Further downstream, Alamo Creek has been channelized into what is known as the Alamo Canal. During the late 1950s and early 1960s, the estimated 100-year flows used in the original channel design were underestimated for future upstream development. Presently, the channel is incapable of conveying 100-year flows.

The most severe flooding problem exists 5 miles south of the planning area, where Arroyo de la Laguna flows under I-680. Here, the bridge has an inadequate flow capacity and acts as flow constriction during major floods. Downstream reaches of Arroyo de las Lagunas are also inadequate. In Alameda County, developer assessment programs have been established to provide funding to correct flooding problems in the area. Because the Dougherty Valley planning area and the City of San Ramon are not in Alameda County, they are not required to participate in this program (EIP Associates 1991). A drainage area and fee schedule were established in the upper reaches of Alamo Creek to control flooding in that area. However, the planning area is not currently in a drainage area.

CCCFCWCD has performed a preliminary hydrologic study to determine the feasibility of using detention basins to reduce onsite floodpeaks after project implementation. The study found that three basins, one on the main branch, one on the west branch, and one on the east branch, would be capable of reducing postproject peak flows from Alamo Creek to below preproject levels. The main, west, and east branch basins would need to be roughly 90 af, 200 af, and 40 af in size, respectively. The proposed development in the Coyote Creek watershed would require a 60-af basin to reduce 100-year peak runoff levels to preproject levels. Figure 10-4 shows the tentative locations of these detention basins.



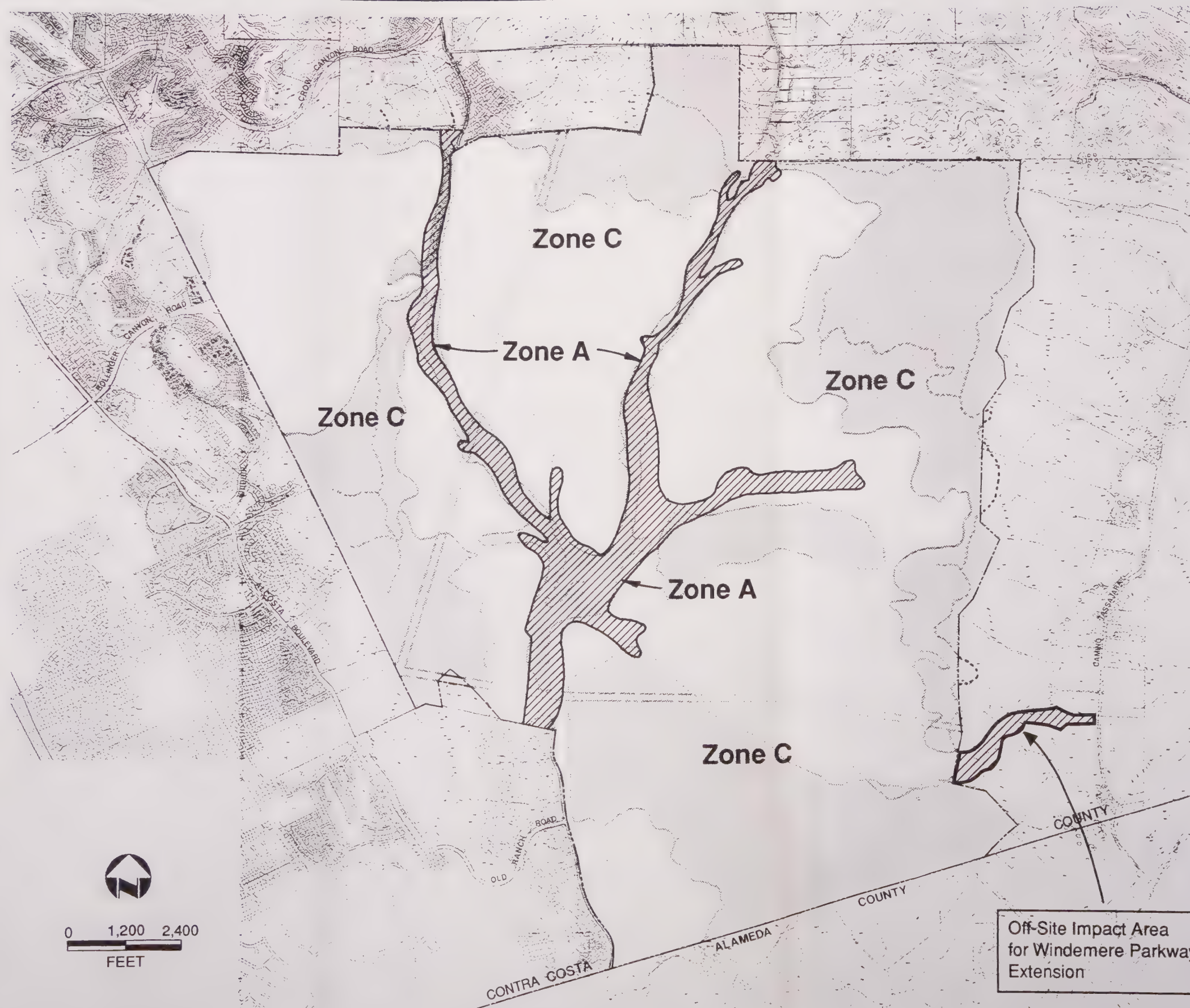


Figure 10-3.  
FEMA 100-Year Floodplain  
for the Dougherty Valley  
Planning Area

#### LEGEND

##### Zone

A Areas of 100-Year Flood; Base Flood Elevations and Flood Hazard Factors not Determined

C Areas of Minimal Flooding

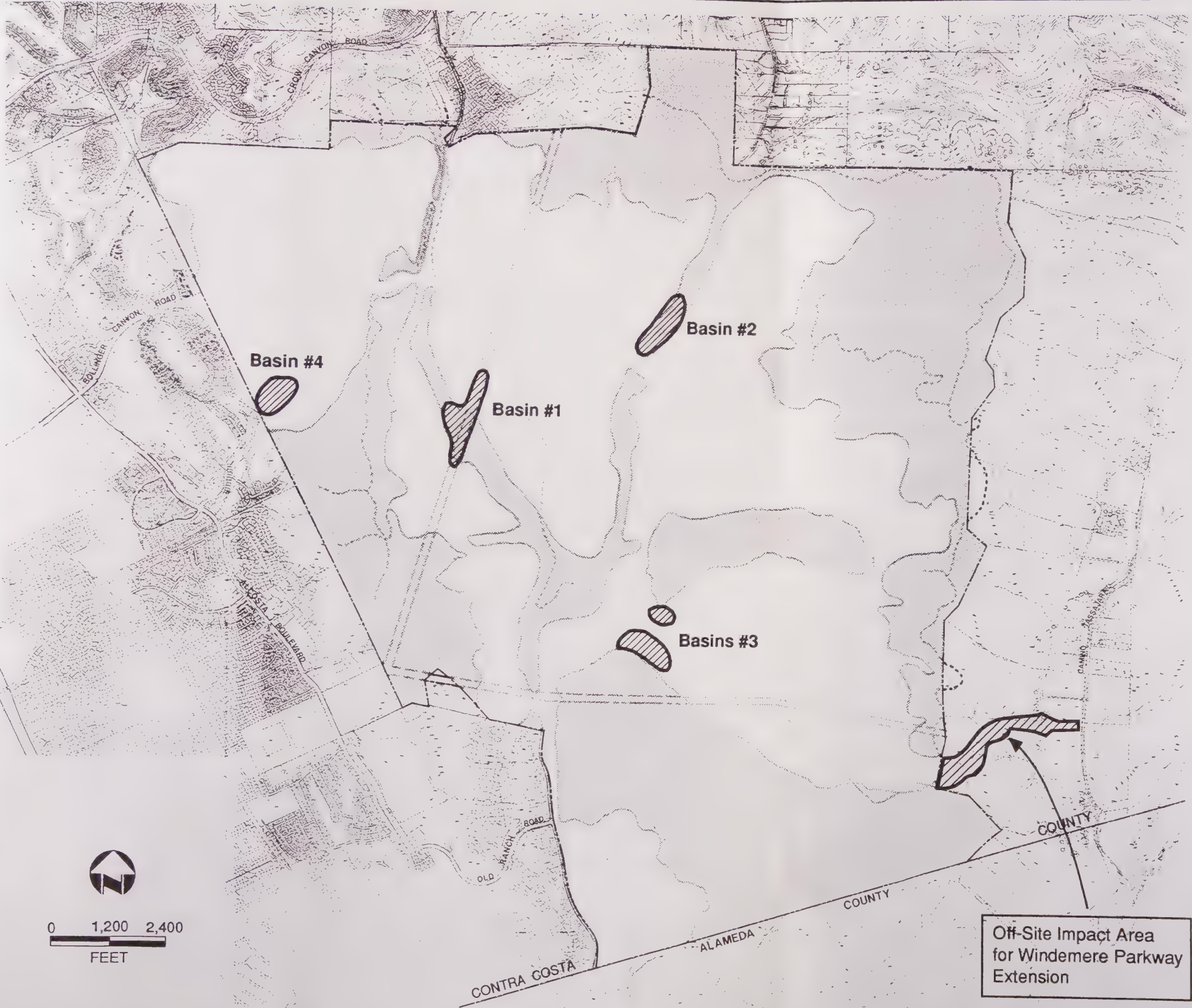
Developed Impact Area  
(Mass Grading)




Areas in Which Grading Will Be  
Limited to Development of  
Special Facilities





Figure 10-4.  
Potential Dougherty Valley  
Detention Basin Locations



- LEGEND**
-  Detention Basins
  -  Developed Impact Area (Mass Grading)
  -  Areas in Which Grading Will Be Limited to Development of Special Facilities

Off-Site Impact Area  
for Windemere Parkway  
Extension



The development concept will retain the major creek channels shown in Figure 10-1 and enhance the riparian vegetation based on future DFG requirements (Myers pers. comm.). Project grading will place fill on the valley floor, adjacent to the creek corridor. Graded fill will elevate areas planned for development above the 100-year floodplain.

The proposed project also includes a bridge crossing of Tassajara Creek just west of the Windemere Parkway/Camino Tassajara intersection. Tassajara Creek is entrenched in a deep channel at this point and is not subject to overbank flooding. However, the creek banks are near vertical and eroding.

### Water Quality

The surface waters in and around the planning area are not used as a domestic water supply and therefore little information is available concerning the quality of these waters. The limited groundwater in this region is inconsistent due to the generally low permeability of bedrock and shallow depths to bedrock in upland valleys in the Diablo Range. No information is available on the groundwater quality underlying the planning area.

Section 402 of the Clean Water Act requires EPA to administer NPDES permit regulations for certain discharges into navigable waters of the United States. The permit regulations require the permittee to evaluate and implement control programs and best management practices to improve water quality and protect beneficial uses. In California, the NPDES permits are under the authority of the RWQCB.

The project proponents are required to comply with rules and regulations of the NPDES permit requirements as promulgated by the California State Water Resources Control Board (SWRCB). However, NPDES permits apply to municipalities with populations of 100,000 or greater; therefore, the Dougherty Valley project does not require an NPDES permit at this time.

The SWRCB has recently adopted water quality objectives for priority pollutants. The objectives are contained in a draft function equivalent document entitled Development of Water Quality Control Plans for: Inland Surface Waters of California and Enclosed Bays and Estuaries of California, published January 29, 1990, and revised April 9, 1991. Proposed alternatives for developing statewide water quality objectives address three major areas of protection: aquatic life, human health, and exposure to chlorinated dibenzodioxins and dibenzofurans. Following are other provisions pertaining to the above objectives:

- point and nonpoint discharges (including urban runoff) must comply with the identified water quality objectives, and
- effluent limits are to be imposed either through NPDES permits or waste discharge requirements, such that the water quality objectives shall not be exceeded in the receiving water outside a designated mixing zone.



The proposed statewide objectives apply to surface waters that receive stormwater discharges. To ensure that stormwater discharges comply with the numerical objectives, the appropriate RWQCBs will determine within 5 years what actions are appropriate, including compliance schedules in waste discharge requirements. Dischargers can be given a maximum of 10 years from plan adoption to come into compliance with the numerical objectives (EIP Associates 1991).

### **Relevant Contra Costa County General Plan Policies**

In order to provide protection of the public from the hazards of flooding and to provide a surface water drainage system and multiuse area for projected growth, the following applicable goals and policies were adopted in the Contra Costa County General Plan:

- Goal 7-Q. To employ alternative drainage systems improvements which rely on increased retention capacity to lessen or eliminate the need for structural modifications to watercourses, whenever economically possible.
- Goal 7-R. To enhance opportunities for public accessibility and recreational use of creeks, streams, drainage channels and other drainage system improvements.
- Policy 7-38. Watershed management plans shall be developed which encourage the development of detention basins and erosion control structures in watershed areas to reduce peak stormwater flows, as well as to provide wildlife habitat enhancement.
- Policy 7-40. Alternative drainage system improvements such as floodplain management in preference to structural improvements, where possible.
- Policy 7-45. On-site water control shall be required of major new developments so that no significant increase in peak flow flows occurs compared to the site's pre-development condition, unless the Planning Agency determines that off-site measures can be employed which are equally effective in preventing adverse downstream impacts expected from the development or the project is implementing an adopted drainage plan.
- Policy 7-48. Open bypass channels, detention basins and all drainage facility rights of way which are provided at different locations in order to supplement existing natural creeks should be developed as an asset to the development, e.g., as a secondary recreation use.
- Policy 7-49. Natural streams and channels which have been structurally modified shall be evaluated for potential use as urban open spaces, linear parks, and trails. Cities and other agencies responsible for recreation shall be encouraged to undertake this evaluation.

- Policy 7-51. Detention basins shall be designed for multiple uses such as parks and playing fields when not used for holding water, if liability and maintenance issues can be satisfactorily resolved.
- Policy 7-56. All residential and non-residential uses proposed in areas of special flood hazards, as shown on FEMA maps, shall conform to the requirements of County Floodplain management applied to all ordinances, approved entitlements (land use permits, tentative, final, and parcel maps, development plan permits, and variances) and ministerial permits (buildings and grading permits).
- Goal 8-U. To maintain the ecology and hydrology of creeks and streams and provide an amenity to the public, while at the same time preventing flooding, erosion and danger to life and property.
- Goal 8-V. To preserve and restore remaining natural waterways in the county which have been identified as important and irreplaceable natural resources.
- Goal 8-W. To employ alternative drainage system improvements which rely on increased retention capacity to lessen or eliminate the need for structural modifications to watercourses, whenever economically possible.
- Goal 8-X. To enhance opportunities for public accessibility and recreational use of creeks, streams, drainage channels and other drainage system improvements.
- Policy 8-82. Riparian habitat shall be protected by providing for channel cross-sections adequate to carry 100-year flows, as per policies contained in the Public Facilities/Services Element. If it is not possible to provide a channel cross section sufficient to carry the 100-year flow, then detention basins should be developed.
- Policy 8-85. Natural watercourses shall be integrated into new development in such a way that they are accessible and provide a positive visual element.
- Policy 8-87. On-site water control shall be required of major new developments so that no increase in peak flows occurs relative to the site's pre-development condition, unless the Planning Agency determines that off-site measures can be employed which are equally effective in preventing adverse downstream impacts.
- Policy 8-91. Grading, filling and construction activity near watercourses shall be conducted in such a manner as to minimize impacts from increased runoff, erosion, sedimentation, biochemical degradation, or thermal pollution.

- Goal 10-G. To ensure public safety by directing development away from areas which may pose a risk to life from flooding, and to mitigate flood risks to property.
- Policy 10-34. In mainland areas affected by creeks, development within the 100-year flood plain shall be limited until a flood management plan can be adopted, which may include regional and local facilities if needed. The riparian habitat shall be protected by providing a cross section of channel suitable to carry the 100-year flow. Flood management shall be accomplished within the guidelines contained in the Open Space/Conservation Element.

## **IMPACTS AND MITIGATION MEASURES ASSOCIATED WITH THE SPECIFIC PLAN**

### **Methodology and Significance Criteria**

#### **Methodology**

Existing hydrologic analyses were used to assess project-related impacts on the surface water and groundwater resources in the planning area and the region. The project's compliance with existing plans and policies and state and federal regulations was considered when assessing flooding, erosion, and water quality issues and potential impacts.

#### **Significance Criteria**

Implementing the project could result in impacts on water resources. Impacts were judged as significant or less than significant based on existing available information. The criteria for determining significance is discussed below.

Impacts of the project on peak site runoff are considered significant if the project would increase these runoff peaks over existing conditions. Any increases in site runoff could exacerbate downstream flood-prone areas.

Impacts on surface water and groundwater are considered significant if the project would violate state or federal agency standards or objectives. Water quality impacts are considered for short-term construction impacts and long-term urbanization impacts.

Impacts on streams and drainages are considered significant if existing channel banks and channelbed armouring would be disturbed by implementation of the project. Altering existing drainage channels could result in a higher erosion potential.



Any proposed project structure that would be located in the FEMA-approved 100-year floodplain is considered to be at flood risk and is therefore considered a significant impact.

Impacts are considered less than significant if none of the above criteria were met.

### **Key Assumptions**

The following assumptions were used in determining potential water resource impacts:

- The preliminary postproject hydrologic analyses performed by CCCFCWCD and the preproject analysis by Philip Williams and Associates are sufficient to determine potential project impacts.
- The results of the preliminary detention basin feasibility analysis developed by CCCFCWCD are sufficient and are used to determine potential project impacts and develop mitigation measures. The preliminary analysis indicated that the construction of several detention basins will reduce 100-year event postproject peak floodflows below the peak flows for the 100-year event under existing land uses.
- The constraint imposed on CCCFCWCD by ACFCWCD for Alamo Creek peak flows at the County line is 4,670 cfs or less.
- The proposed creek restoration and revegetation program will be designed to remove areas zoned for project development out of the existing FEMA 100-year floodplain, or areas in the floodplain will have pad elevations above the 100-year flood levels.

### **Relevant Dougherty Valley Specific Plan Policies**

The following policies have been adopted as part of the DVSP as a means of preserving and enhancing open space areas while providing flood protection for the projected growth areas and areas downstream:

- Policy OSC-8. Establish a primary creek corridor system to serve a multi-purpose linear greenway and storm water management system.
- Policy OSC-9. Establish a hierarchy of creek improvements that reflect the role and importance of individual drainages which add to the identity, amenity and biologic diversity of the valley.

- Policy OSC-10. Stabilize the creeks, utilizing a combination of vegetation and environmentally sensitive stabilization techniques.
- Policy CF-2. Develop a wide range of park facilities to serve Dougherty Valley community recreational needs.
- Policy U-6. Establish a storm drainage system that protects property and ensures public safety while maintaining the natural resource values to the creeks.
- Policy U-7. Provide a storm drainage system within Dougherty Valley that does not increase off-site flood hazards.

The proposed project is consistent with the abovementioned Dougherty Valley Specific Plan policies.

### **Project-Related Impacts**

#### **Impact: Increased Runoff from the Planning Area**

The conversion of land from open space to a developed condition has the potential to alter onsite and offsite runoff. Urban development can diminish the infiltration capacity of a site due to the increases in impervious surfaces. Storm drains and gutters alter existing runoff characteristics by providing a more efficient conveyance system of runoff. More efficient runoff conveyance systems decrease the natural storage capability of the watershed and alter the timing and magnitude of flood peaks entering offsite drainage systems downstream.

Any alteration in runoff may affect local or regional hydrology, causing flooding problems onsite or upstream and downstream. The proposed project would increase storm-water runoff from the planning area over existing conditions. The project would entail construction of buildings, driveways, and parking lots that would increase the amounts of impervious surfaces and reduce rainfall absorption.

CCCFCWCD recently preformed a hydrologic analysis of the postproject 100-year floodflow in Alamo Creek below the planning area at the Alameda County line using their in-house unit hydrograph model. Preliminary results indicated that the 100-year floodflow in Alamo Creek at the County line was 5,700 cfs (Agnew pers. comm.). The results of the hydrologic analysis by Philip Williams and Associates indicated a preproject flow in Alamo Creek of 3,902 cfs. The performance standard established by ACFCWCD requires that the 100-year Alamo Creek floodflows do not exceed 4,670 cfs at the County line. These results indicate that the proposed project could result in major increases in Alamo Creek flood peaks. Increases in these peaks could result in additional overbank flooding on the planning area and downstream.

This impact is considered significant because increased runoff may cause additional flood damage downstream.

### **Mitigation Measure**

- 10.1: The project proponents should construct the onsite detention basins shown in Figure 10-4 to reduce postproject peak floodflows to predicted preproject levels. These methods could include one or a combination of onsite storage facilities.

CCCFCWCD has performed a preliminary analysis to determine the feasibility of using detention basins to reduce onsite project flood peaks, as discussed above. Preliminary results indicate that onsite detention basins are feasible and would reduce flood peaks to preproject levels.

The drainage element of the specific plan proposes the construction of detention basins to reduce postproject peak floodflows below existing levels. The basins should be designed using flood basin design criteria developed by CCCFCWCD. Because the flood basins will also be used for recreation and wildlife habitat, the basins should be designed with the assistance of a registered landscape architect. This mitigation measure would be consistent with policies OSC-8, CF-2, CF-4, U-6, and U-7 of the DVSP. Policy OSC-8 states that the creek corridor system will serve as a multi-purpose linear greenway and stormwater management system. Policy CF-2 states that detention basin facilities will be used as playfield areas during the dry season to serve students of new schools proposed as part of the Dougherty Valley specific plan. Policy CF-4 requires that the linear park system along the Alamo Creek corridors provide open space park lands and playfields that will support the recreational vitality of Dougherty Valley. The creek improvements called for in Figure 16 of the specific plan shall be incorporated into the creek enhancement plan.

Policy U-6 requires the establishment of a storm drain system that protects property and ensures public safety while maintaining the natural resource values of the creek system. Policy U-7 requires that the Dougherty Valley storm drain system does not increase offsite flood hazards. This policy suggests detention basins as the primary means of accomplishing this goal.

As part of the detailed detention basin project design, the project proponents should determine the preproject and postproject timing of the 100-year flood peak from Alamo Creek off the planning area in relation to 100-year peaks occurring in downstream drainages. Knowledge of the timing of flood peaks from the other major drainages, such as South San Ramon Creek, Tassajara Creek, Arroyo Mocho Canal, and Alameda Creek, will ensure that the detention basins will not exacerbate any downstream flooding conditions. Detention basin designs should involve coordination with ACFCWCD prior to final design.



A mechanism must also be established to ensure necessary maintenance of drainage facilities in the planning area to ensure that they function as designed. Ideally, a benefit assessment district should be established, with routine maintenance performed by the County flood control district. A maintenance entity for the basin in the Coyote Creek watershed can be accomplished by annexing the area to Drainage Area 75A.

Implementing mitigation measure 10.1 would reduce this impact to a less-than-significant level because peak project site runoff would be reduced to preproject levels.

### **Mitigation Measure**

- 10.2: The project proponents should establish a storm drain infrastructure system throughout the proposed project that safely conveys runoff from individual homes, lots, and streets to the major creeks via a system of culverts, gutters, and swales. This local flood protection should be provided for at least the 10-year local flood event. This mitigation measure should follow the storm drain system policy U-6 of the DVSP.

A benefit assessment district (or compatible mechanism) should be established to maintain the drainage facilities for Alamo Creek.

The Coyote Creek watershed should be annexed to Drainage Area 75A.

Implementing mitigation measure 10.2 would reduce this impact to a less-than-significant level because it would prevent flooding from local runoff.

### **Impact: Risk of Flood Damage from Development in the 100-Year Floodplain**

Flood insurance maps prepared by FEMA are typically used to identify and predict flood hazards on a given property. The most current available FEMA flood maps of Dougherty Valley (1987) indicated that only an approximate-level map was available. The 1987 FEMA flood maps for Dougherty Valley indicated that under 1987 land use patterns, shallow overbank flooding occurred in the flat terraces adjacent to the west and main branches of Alamo Creek. Consequently, further detailed studies by Philip Williams and Associates of the planning area were undertaken to provide estimated peak flows and predict more accurate information for potential flood hazards. The studies indicated no overbank flooding of the main branch of Alamo Creek and a relatively narrow band of flooding along the west branch, which would be mitigated by the proposed landscape setback. Earlier topographic surveys have been used, but further research is needed to validate or amend the results.

Regardless of which floodplain study is considered, portions of the planning area are within the existing 100-year floodplain under existing runoff conditions.

This impact is considered significant because development within this 100-year floodplain constitutes a risk of flood damage to property.

### **Mitigation Measure**

- 10.3: The project proponents should increase the capacity of existing onsite major drainages. As a result of the degraded condition of the creeks in the planning area, the DVSP proposes a creek restoration program as stated under policy OSC-9, which includes the regrading of the creeks and channel modifications that would form terraces and accommodate major flood events and Policy OSC-10 which requires that regraded creeks be stabilized using a combination of vegetation and environmentally sensitive stabilization techniques. The proposed creek corridors will vary in width and configuration. Major creek corridors would average 300 feet in width, with fluctuations based on individual design and engineering considerations in order to provide adequate space for the full range of biologic, hydrologic, and recreational improvements. Smaller creeks and drainages are to be maintained within a 50-foot corridor. These channels should be sized to accommodate the anticipated 100-year floodflows.

The project falls under the jurisdiction of DFG and the Corps. Designs for creek improvements must be coordinated with these agencies.

The project proponents should submit a letter for map revision to FEMA to reflect the new 100-year floodplain due to the channel changes proposed in the restoration program. Development within the anticipated revised floodplains should be designed to withstand flooding.

Implementing mitigation measure 10.3 would reduce this impact to a less-than-significant level because the proposed development would not be at risk of flood damage for the 100-year flood event.

### **Impact: Increased Erosion during Construction**

Implementing the project would require extensive grading throughout the watershed and extensive disturbance of the existing drainage channels. Construction and grading activities could temporarily cause significant increases in site erosion associated with storm runoff. Sediment-laden runoff entering nearby drainages causes increased channel siltation and reduced flood-carrying capacity downstream.

These water quality impacts are considered significant because increased erosion may degrade downstream aquatic habitat and resources and exacerbate existing flood problems downstream.

## **Mitigation Measure**

- 9.4: The project proponents should implement the erosion control and rehabilitation plan described in Chapter 9, "Soils and Geology". Implementing this plan would be consistent with the creek stabilization plan of policy OSC-10 of the DVSP.

Implementing mitigation measure 9.4 would reduce this impact to a less-than-significant level because channel erosion conditions would be reduced to preproject conditions or better.

## **Impact: Increased Water Quality Degradation Because of Urban Runoff**

Runoff from urbanized areas contains elevated levels of pollutants. Urban runoff can carry a variety of accumulated toxic pollutants such as oil and grease, heavy metals, sediment, pesticide residues, and fecal coliform bacteria from roadways, parking lots, rooftops, and other surfaces and deposit them in adjacent waterways. Pollutant concentrations in urban runoff are extremely variable and are dependent on storm intensity, land use, elapsed time since the previous storm, and the volume of runoff generated in a given area that reaches a receiving water. Pollutant sources in urban runoff include household hazardous waste, automobile wastes such as oil and antifreeze, and domestic pesticide use.

The most critical time for urban runoff effects would be in fall under low flow conditions. Pollutant concentrations are typically highest during the first major rainfall event after the dry season, known as the "first flush".

Quantitative estimates of pollutant loadings from urban runoff are both scarce and of questionable accuracy in general. The data considered the best available for application to urban runoff in this area are from a study funded by EPA for the Nationwide Urban Runoff Program (NURP) in Fresno, California, conducted by the U.S. Geological Survey (USGS) and the Fresno Metropolitan Flood Control District in 1983. This study analyzed storm runoff from four land use types and quantified the concentrations of various constituents considered important in evaluating the water quality of urban runoff. The water quality parameters analyzed and the median concentrations found in the NURP study are shown in Table 10-1. Table 10-1 indicates that significant pollutants found in urban runoff include lead, copper, and sediment. Organic compounds were not included in the study.

These water quality impacts are considered significant because increases in urban runoff pollutants may degrade downstream aquatic habitat and resources.

## **Mitigation Measure**

- 10.4: The project proponents should construct onsite retention or detention facilities or install silt or grease traps in the storm drain system for the proposed project drainage.



Table 10-1. Median Pollutant Concentrations in Urban Runoff  
for Selected Constituents Based on Land Use

Runoff Constituent	Land Use			
	Industrial	Commercial	Multiple Dwelling Residential	Single Dwelling Residential
Total dissolved solids (mg/l)	165	39	32	34
Suspended sediment (mg/l)	500	57	333	70
5-day biochemical oxygen demand (mg/l)	135	5.6	7.2	8.3
Dissolved nitrogen as NO <sub>2</sub> and NO <sub>3</sub> (mg/l)	1.3	0.55	0.60	0.5
Total orthophosphate (mg/l)	3.3	0.09	0.27	0.22
Dissolved lead (μg/l)	9	12	12	5
Total recoverable lead (μg/l)	74	100	170	170
Dissolved copper (μg/l)	15	4	5	5
Total recoverable copper (μg/l)	66	18	22	14

Source: U.S. Geological Survey Report No. 84-710. Fresno Nationwide Urban Runoff Project.

The use of detention basins or silt and sediment traps would result in the gradual settling and accumulation of sediment and urban pollutants in the basin. Most pollutants associated with urban runoff from residential and light commercial development, such as lead and copper, would tend to accumulate in the deposited sediment. The types and amounts of pollutants present will depend on the amount and frequency of runoff and the management of the developed areas.

The project proponents should install silt and grease traps for the project drainage system. All drain outlets should be constructed with energy dissipation structures to prevent erosion. The County should maintain the silt and grease traps and ensure that street sweepers clean streets on a regular schedule, particularly before the first storms of the season. Implementing peak floodflow reduction and infiltration practices, such as grass swales and infiltration trenches and vegetated buffer strips, would also reduce water quality degradation. These measures should be implemented by tentative maps and monitored by the County.

Implementing mitigation measure 10.4 would reduce this impact to a less-than-significant level.

#### **Impact: Hazardous Material Spills during Construction**

Because project construction would require the use of gasoline- and diesel-powered heavy equipment, hazardous materials could spill onsite and wash into nearby drainages. Bulldozers, backhoes, water pumps, air compressors, and construction materials will be used onsite. Chemicals such as gasoline, diesel fuel, lubricating oil, hydraulic oil, lubricating grease, automatic transmission fluid, paints, and solvents will be onsite during construction activities. An accidental spill of any of these substances could degrade the water quality of surface waters in the drainage systems on and off the planning area.

This impact is considered significant because hazardous spills entering adjacent waterways and groundwaters may lead to degradation of downstream aquatic habitat and other beneficial uses.

#### **Mitigation Measure**

- 10.5: The project proponents should ensure that their plan includes a substance control program for construction activities to reduce potentially significant impacts on water quality caused by a chemical spill. This program should require safe collection and disposal of hazardous substances generated during construction activities and should include an emergency response program to ensure quick and safe cleanup of accidental spills. The County should require a hazardous substance control and emergency response program as a condition of preliminary plan approval.

Implementing mitigation measure 10.5 would reduce this impact to a less-than-significant level.

## **Cumulative Impacts**

### **Impact: Increased Water Quality Degradation**

The proposed project could contribute to total watershed water quality degradation on and off the planning area due to the urban runoff generated from the project. Existing urbanization in addition to the proposed project and future urbanization within the watershed of the region may cumulatively affect surface water and shallow groundwater quality.

This impact is considered significant because the additional project urban runoff could contribute to existing cumulative degradation of downstream aquatic habitat and other beneficial uses due to other watershed urbanization.

### **Mitigation Measure**

- 10.4: This measure is described above.

Implementing mitigation measure 10.4 would reduce this impact to a less-than-significant level.

### **Impact: Increased Runoff and Flooding Downstream of the Planning Area**

Implementing the project would generate additional runoff due to urbanization of the Dougherty Valley watershed. The flood control systems downstream of the planning area do not have sufficient capacity to contain the 100-year flood event. Any increases in peak floodflows caused by the project would have a significant impact on downstream flood damages.

This impact is considered significant because increased planning area runoff may cause additional flood damage downstream.

### **Mitigation Measure**

- 10.1: This measure is described above.

Implementing mitigation measure 10.1 would reduce this impact to a less-than-significant level because peak planning area runoff would be reduced to preproject levels.



**Impact: Increased Channel Erosion Due to Construction of Bridge Crossings**

The project includes bridge crossings of the west and main branches of Alamo Creek and Tassajara Creek. Bridge improvements may constrict flow in the channels, causing higher velocities and more channel erosion, and bridge abatement scour if not sized and designed properly.

**Mitigation Measure**

- 10.6: Size bridges such that they do not constrict flows, particularly bankfull floodflows. Design of bridges should be performed by a registered civil engineer. Implementation of mitigation measure 10.6 would reduce this impact to a less-than-significant level.

# Chapter 11. Biological Resources

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## INTRODUCTION AND APPROACH

Information on biological resources in the Dougherty Valley planning area was gathered during two reconnaissance-level field visits conducted by Jones & Stokes Associates biologists on August 21 and December 17, 1991, and from the following reports: the Dougherty Valley Specific Plan: Opportunities and Constraints (EIP Associates 1990), the Shapell property Resource Survey (LSA Associates 1989), and the Dougherty Valley Growth Management and Specific Plan draft EIR (EIP Associates 1991).

For this assessment, habitat names and descriptions are based on Holland (1986). Some habitat types in previous biological reports have been renamed and described based on Jones & Stokes Associates biologists' field observations. This modification was made to more precisely describe the biological values of the habitats types that could be affected by the project. For example, valley-foothill riparian and freshwater emergent wetlands (EIP Associates 1990) have been renamed as willow riparian forest, valley oak riparian woodland, and freshwater marsh.

Impact analysis and mitigation formulation for the Dougherty Valley project is based on the results of biological studies conducted by EIP Associates, LSA Associates, and Ecological Analysts, Inc., from 1981 to 1991. Other sources of information include DFG's Natural Diversity Data Base (NDDDB) (1991), DFG, U.S. Fish and Wildlife Service, and local biologists. Common and scientific names for plant and wildlife species mentioned in the text are presented in Appendix F.

Commonly used terms are defined below, followed by descriptions for the planning area's general floristic and geographical setting, natural communities, and special-status plant and wildlife species.

## SETTING

### Planning Area

The planning area is located within the California floristic province and supports vegetation typical of lowland portions of California with a Mediterranean climate. Situated along the southwest base of the Mount Diablo Range, the Dougherty Valley planning area is in a zone of biogeographical transition between coastal and interior habitats.

The planning area lies adjacent to a region known for its botanical resources. To the north, Mount Diablo State Park supports many special-status species and is identified as an endemic plant region by Bowerman (1944) and Stebbins and Major (1965). Hoover (1939) and Stebbins and Major identified the region east of the planning area as the San Joaquin Valley endemic flora region; this area is noted for its endemic plant taxa, vernal pool and alkali sink scrub vegetation, and the differentiation and speciation of several plant taxa (e.g., goldfields) (Stout and Wainright 1980).

The planning area contains rolling hills characterized by annual grasslands. Several scattered rock outcrops are found on ridges, and a few scattered oak trees are found on side slopes and in valley bottoms. A mosaic of wetland communities occurs in Dougherty and Hidden Valleys and around Coyote Creek. Included in this habitat mosaic is valley oak riparian woodland, willow riparian forest, freshwater marsh, and alkali meadow, found in the valley bottoms interspersed with meandering creeks, drainages, and stock ponds. Side slopes in the planning area contain annual grasslands and valley oak savannas. Figure 11-1 shows the different habitats in the planning area.

Although the Dougherty Valley planning area has been intensively grazed for at least 100 years, several sensitive and valuable botanical resources remain. Specifically, alkali meadows, valley oaks, valley oak savannas, riparian woodlands, and willow riparian forests are all considered important and valuable resources of the Dougherty Valley planning area. Alkali meadows are locally uncommon and are rapidly disappearing throughout the Central Valley and valleys of the inner Coast Range as a result of land conversion to agricultural and urban uses. Because of the scarcity of the resource in the area and the number of threats to the resource statewide, the importance of the alkali meadow habitat in the Dougherty Valley planning area increases.

Likewise, valley oaks, valley oak savannas, and riparian woodlands are also considered locally uncommon. State and local agencies, including Contra Costa County, have expressed concern regarding the lack of regeneration of valley oaks and continued statewide loss of the resource. The mature valley oaks of Dougherty Valley increase in value with the increased loss of adjacent valley oak occurrences and lack of regeneration.

Perhaps the most unique botanical resource of the planning area is the very large, old arroyo willows in the southern portion of the area. Such large willows are relatively uncommon in Contra Costa County and are considered important botanical attributes of the site.

### Natural Communities

A natural community is defined as an assemblage of plants, animals, and other organisms that form a distinctive living system with its own composition, structure, environmental relationship, development, and functions (Whittaker 1975). Common natural communities are defined as a natural community that is frequently encountered in a given geographic range.



Figure 11-1.  
Important Botanical Resources  
of the Dougherty Valley  
Planning Area



# **LEGEND**

## **Habitat Types**

- AM Alkali Meadow
- RV Valley Oak Riparian Woodland
- RW Willow Riparian Forest
- FM Freshwater Marsh
- HP Horticultural Planting
- S Seep
- P Pond
- VOW Valley Oak Savanna
- VO Valley Oak Tree

- Seasonal Drainage
- Perennial Creek

- Developed Impact Area (Mass Grading)

- Areas in Which Grading Will Be Limited to Development of Special Facilities





For the purpose of this section, community types in the planning area are categorized as common natural communities, important natural communities, and developed communities to reflect their importance, ecological value, and need for consideration under CEQA. Each general category contains a group of communities that are described below. Vegetation and wildlife are also discussed in association with each community type.

## **Common Natural Communities**

Common natural communities of the planning area include annual grassland, rock outcrop, eucalyptus plantings, and dryland farmed grassland.

### **Annual Grassland**

**Vegetation.** Annual grasslands are herbaceous communities characterized by a dense to sparse cover of annual grasses and annual and perennial forbs. Some grassland areas support widely scattered valley oaks, interior live oaks, and eucalyptus.

The naturalized community is dominated by non-native grasses such as wild oats, hare barley, soft chess, and ripgut brome, and by the annual forb, bur clover. Grassland areas not used for agriculture or grazing have a higher species diversity and support a variety of showy forbs, such as lupine, white tarweed, California poppy, mule ears, and brodiaea species.

**Wildlife.** Grassland is the dominant wildlife habitat type in the planning area. This habitat type provides most of the forage for livestock; grazing pressure varies from moderate to heavy in the area. Grazing enhances habitat quality for some wildlife species (e.g., burrowing owls and California ground squirrels) but reduces it for others (e.g., northern harriers and common kingsnakes).

Many wildlife species use grasslands for foraging and breeding. Grasslands near open water, wetlands, and woodland habitats are used by the greatest number of wildlife species. The tricolored blackbird, western pond turtle, and possibly tiger salamander use grasslands adjacent to wetlands for foraging, breeding, and overwintering and are found in habitats similar to those found onsite. Water and riparian and oak woodlands provide places for resting, breeding, and escape cover. Amphibians and reptiles residing in grasslands include the Pacific treefrog, western fence lizard, and gopher snake. Birds known to forage in grasslands include the horned lark, savannah sparrow, tricolored blackbird, Brewer's blackbird, western meadowlark, and burrowing owl. Mammals that forage or breed in grasslands include deer mice, desert cottontail, California ground squirrel, striped skunk, and coyote.

Small mammals in grasslands are important prey for a variety of predatory birds and mammals, including golden eagles, prairie falcons, American kestrels, red-tailed hawks, red fox, gray fox, and coyotes. The Contra Costa County General Plan recognizes the importance of grasslands adjacent to wetlands and recommends conserving these areas (Policy 8-24).



**Distribution.** Annual grasslands occur extensively on the hillsides and valleys in the planning area and are typically used for agricultural and grazing purposes.

### **Sandstone Rock Outcrops**

**Vegetation.** Sandstone rock outcrops consist of exposed sandstone bedrock; shallow, sandstone rocks; and sandy soils vegetated with a sparse mixture of species from the encompassing annual grassland.

Rock outcrops are typically vegetated with forbs such as California poppy, naked-stemmed buckwheat, yellow-star thistle, and non-native annual grasses such as red brome and ripgut brome.

**Wildlife.** Rock outcrops in annual grasslands provide cover and breeding sites for California ground squirrels, deer mice, red foxes, coyotes, western fence lizards, and gopher snakes.

**Distribution.** Sandstone rock outcrops exist on the crests of hilltops in the planning area.

### **Eucalyptus Plantings**

**Vegetation.** Eucalyptus is the primary horticultural planting in the study area.

**Wildlife.** Horticultural plantings have low value for most wildlife species because of their limited foraging value, but eucalyptus and other large trees provide nesting or roosting sites for the red-tailed hawk, American crow, and mourning dove. Hummingbirds feed on nectar from eucalyptus flowers, and yellow-rumped warblers feed on insects attracted to the flowers.

**Distribution.** Isolated stands of eucalyptus occur on the Shapell property and near the proposed Windemere Parkway roadway and Camp Parks (Figure 11-1).

### **Dryland Farmed Grassland**

**Vegetation.** Dryland farming is an agricultural practice that requires periodic discing (every 2-3 years for some farms), seeding, and harvesting of grasslands that are not irrigated. This regular disturbance inhibits the establishment of most native plant species.

Dryland farmed grassland is dominated by seeded non-native grasses such as oat, barley, and wheat with some vetch or clover. Plant species that are found in this community are able to tolerate periodic disturbances; these species include common fiddleneck, soft chess, platycarpos, and popcornflower. Because of dryland farming practices, the growth of trees and shrubs is limited and species diversity of plants is low.

**Wildlife.** Dryland farmland has low value to most wildlife species because of frequent ground and vegetation disturbance, which discourages nesting and denning. Farm-

land is used by mammalian predators, including badgers, foxes, and coyotes, but prey numbers and resulting predator use are generally lower than in uncultivated grasslands. Red-tailed hawks, northern harriers, golden eagles, and turkey vultures forage in dryland crops in the planning area, but their use is probably also reduced by lower prey availability.

**Distribution.** Dryland farmed grassland occurs on the Shapell property.

### **Important Natural Communities**

Natural communities are considered important if they are uncommon in the planning area, region, or state; support dependent plant and wildlife species; and perform essential ecosystem functions such as water filtration and bank stabilization.

Important natural communities in the planning area include valley oak woodland, valley oak riparian woodland, willow riparian forest, freshwater marsh, alkali meadow, seeps, stock ponds, perennial drainages, and seasonal drainages.

Although a wetland delineation has not been completed for the planning area (two reconnaissance-level survey wetland reports were prepared by LSA Associates [1990, 1991] that indicate areas of potential jurisdictional wetlands), freshwater marsh, alkali meadow, seeps, vegetated stock ponds, and perennial drainages on the site appear likely to qualify as jurisdictional wetlands. Stock ponds and drainages without hydrophytic species appear to qualify as other jurisdictional waters of the United States. A wetland delineation using Corps-approved methodology needs to be conducted by the project proponents and verified by the Corps.

### **Valley Oak Savanna**

**Vegetation.** Historically, the planning area may have supported dense groves of valley oaks. In the planning area, extensive grazing and livestock disturbance has most likely inhibited the growth of young trees and prevented the establishment of seedlings. Valley oak savannas in the planning area show little sign of regeneration. The savanna is dominated by valley oak with an understory of annual grassland species.

Statewide and local concerns about the future and viability of valley oak savannas and woodlands exist because of continued losses due to development, firewood harvest, and lack of seedling recruitment. Because the distribution of valley oak habitat has been substantially reduced, the California Native Plant Society has listed valley oak as a species of special concern (Smith and Berg 1988). Because of its concerns about continued losses of mature native trees in the county, Contra Costa County is currently drafting a tree ordinance that would include the preservation of valley oaks (Khanna pers. comm.).

**Wildlife.** Oak savannas provide a variety of foods and microhabitat conditions for wildlife. Oak trees provide breeding habitat for cavity-nesting birds and small mammals, including the Nuttall's woodpecker, northern flicker, western bluebird, ash-throated flycatcher, and bats. The tree canopy provides foraging habitat for songbirds, including the

ruby-crowned kinglet, yellow-rumped warbler, orange-crowned warbler, and warbling vireo. The grassland understory provides foraging habitat and cover for many wildlife species, including the California quail, California towhee, dark-eyed junco, deer mouse, gopher snake, and southern alligator lizard.

**Distribution.** Small clusters of two to five individual valley oaks occur in the eastern portion of Dougherty Valley along hillsides and lower slopes Figure 11-1.

### **Valley Oak Riparian Woodland**

**Vegetation.** Valley oaks form a woodland community with intermixed coast live oak and arroyo willow trees. This portion of Alamo Creek appears to be a perennial drainage that supports, along with the valley oak riparian woodland, a freshwater marsh habitat. Extensive grazing by livestock may have inhibited regeneration of this valley oak community, which historically may have extended out into the floodplain areas surrounding the creek.

The riparian community is characterized by an overstory of valley oaks, coast live oaks, and willows with a patchy understory of California rose, Himalaya berry, and poison oak. Cattails, water milfoil, watercress, curly dock, and rush species occur in the stream channel.

**Wildlife.** Valley oak riparian woodland supports wildlife values similar to those of valley oak woodland.

**Distribution.** Valley oak riparian woodland occurs in the planning area along the east branch of Alamo Creek (Figure 11-1).

### **Willow Riparian Forest**

**Vegetation.** The riparian community is characterized by a canopy layer composed of large, tree-size arroyo willows and an understory of assorted shrub, herbaceous, and emergent species. Shrub- and tree-size arroyo willows grow in both perennial and seasonal drainages along the upper and lower banks. Willows form a dense to sparse forest and also occur as scattered individuals along the drainages in Dougherty Valley. Willow riparian forests are relatively uncommon in Contra Costa County, especially those with mature willows of the size observed in Dougherty Valley.

The community is characterized by a canopy layer dominated by arroyo willow with red willow interspersed, and a shrub layer dominated by poison oak, California rose, and Himalaya berry. Along the higher banks, such species as nettle, mugwort, and bee plant form the herbaceous understory layer. Freshwater marsh species occur intermittently in the drainage channel.

Mature willow riparian forest is considered a unique and important natural community because it is relatively uncommon in Contra Costa County, and because it provides forage and habitat for many wildlife species that depend on these communities periodically or year



round. The substantial local and statewide decline of riparian forests in recent years has increased concerns for dependent plant and wildlife species, leading DFG and USFWS to adopt "no-net-loss" policies to help arrest further declines. The Contra Costa County General Plan also recognizes the importance of willow riparian areas in its Policies to Protect and Maintain Riparian Zones (Policy Nos. 8-78, 8-79, 8-80, and 8-83), further reinforcing the local importance of this community. Portions of the willow riparian community that occur in drainage channels below the ordinary high-water mark could qualify as jurisdictional wetlands where hydrophytic vegetation, wetland hydrology, and hydric soil conditions are present. The community's potential jurisdictional wetland status further increases its importance.

**Wildlife.** Grazing has reduced the amount and quality of riparian habitat in the planning area; nevertheless, the habitat remains an important wildlife resource because it provides cover, breeding, and foraging habitat in an area with little tree or shrub cover.

The riparian habitat is used by a variety of wildlife species. This habitat produces abundant aquatic and terrestrial invertebrates that are prey for amphibians and reptiles, such as the Pacific treefrog, common garter snake, and western terrestrial garter snake, as well as insectivorous birds, such as the yellow-rumped warbler, warbling vireo, northern flicker, and Nuttall's woodpecker. Small mammals found in riparian habitats include shrews, voles, bats, and mice. Raptors that nest at the planning site include the red-tailed hawk, great horned owl, and American kestrel. At least four pairs of red-tailed hawks and two great-horned owls have been observed nesting at the planning area. The mature stands of trees along the intermittent creeks provide nesting cavities for wildlife species such as Nuttall's woodpeckers, northern flickers, and bats.

**Distribution.** Willow riparian forest occurs along major branches and tributaries of Alamo Creek (Figure 11-1).

## Wetlands

Wetlands are important natural communities that deserve special consideration because of continued statewide and regional losses, and because of the state and federal policies and laws pertaining to their protection. Wetland communities play a vital role in recharging groundwater reserves, protecting water quality, and providing important habitat for dependent plant and wildlife species.

The Corps regulates the placement of dredge or fill materials into jurisdictional waters of the United States, a classification that includes both wetlands and "other waters" of the United States. The wetlands and other waters classifications are defined below.

Seasonal wetlands and intermittent streams in the project area would probably qualify as wetlands and/or other waters of the United States under the jurisdiction of the Corps and would be regulated under Section 404 of the Clean Water Act. The Clean Water Act authorizes the Corps to regulate discharges of dredged and fill material into "waters of the

United States", including wetlands. Wetlands are defined for regulatory purposes as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (40 CFR 230.3, 33 CFR 328.3, and U.S. Army Corps of Engineers Wetlands Delineation Manual 1987).

Waters of the United States include all "waters such as intrastate lakes, rivers, streams (including intermittent streams. . . ), the use, degradation or destruction of which would affect interstate or foreign commerce." (331 FR 328.3). Recent case law has created some question as to whether isolated "other waters" or wetlands, those not adjacent to waters otherwise subject to regulation, are subject to jurisdiction under the Clean Water Act.

To determine the location and extent of jurisdictional areas in the planning area, a detailed multiparameter wetlands delineation should be completed. A report, map, and data sheets should be submitted to the Corps for verification to establish their jurisdiction.

Any activities that would result in the placement of dredged or fill material into jurisdictional wetlands or other waters of the United States would require permits and agreements from the Corps (Section 404 permit), and often, DFG (Streambed Alteration Agreement). A wetlands mitigation plan (including restoration and revegetation) addressing DFG's no-net-loss policy should be submitted as part of the permit application.

### **Freshwater Marsh**

**Vegetation.** Freshwater marsh is characterized by a prevalence of perennial emergent vegetation with intermixed grasslike and herbaceous species. Dominant plants include cattails, common tule, creeping spike-rush, penny wort, water speedwell, watercress, water plantain, and a variety of rush species. Portions of creeks and ponds with standing water contain pure stands of cattails and bulrush.

Freshwater marsh is likely to qualify as a jurisdictional wetland, based on the presence of perennially saturated soil and dominance by hydrophytic vegetation. Freshwater marsh is considered an important natural community because it provides one of the few perennial water sources available during dry seasons for dependent plant and wildlife species, bank stabilization, groundwater recharge, and water filtration.

**Wildlife.** Wetlands are important to wildlife because of their current scarcity and importance to wetland-dependent wildlife species. Freshwater marshes provide high-quality foraging habitat, breeding habitat, and cover for many waterbirds, small mammals, reptiles, and amphibians. During winter, freshwater marshes provide seeds and invertebrates eaten by waterfowl. Herons and egrets feed on crayfish, fish, and amphibians in shallow areas. Wildlife species commonly using these habitats include the great blue heron, mallard, cinnamon teal, marsh wren, red-winged blackbird, raccoon, common garter snake, and Pacific treefrog.



**Distribution.** In Dougherty Valley, freshwater marsh occurs in areas with perennial water sources, along Alamo and Coyote Creeks and their tributaries, and around stock pond edges (Figure 11-1).

### **Alkali Meadow**

**Vegetation.** In the planning area, alkali meadows develop on valley bottoms with alkaline soils and are characterized by extreme alkalinity, high clay content, poor surface runoff, low infiltration rates, winter-spring saturation, and summer drying at the soil surface. Historically, the alkali community was probably more extensive in the planning area. Remaining alkali meadows and adjacent downcut drainages appear to be highly degraded and damaged as a result of heavy cattle use. The highest quality wetlands occur in Hidden Valley.

Alkali meadows are characterized by a dense turf of herbaceous perennial halophytic species with almost barren, salt-encrusted scalds interspersed throughout. Typical dominant species include salt grass, alkali heath, alkali peppergrass, alkali mallow, low barley, and geniculate barley. Salt grass is the most prevalent species. Two unique alkali meadows were identified in previous documents as vernal marshes. These areas have been identified in the lowland area east of Alamo Creek (LSA Associates 1990). The largest of the two pools is dominated by alkali heath, and the other contains a bare center with sparse cover of alkali heath and alkali mallow around the edges (LSA Associates 1990).

Alkali meadows were historically widespread throughout the San Joaquin and southern Sacramento Valleys and adjacent valleys of the inner Coast Ranges and have been substantially reduced to scattered remnants because of urban and agricultural land conversions. This community is considered an important natural community for several reasons: historical losses have reduced the extent of alkali meadow; the habitat is important to unique, dependent plant and wildlife species; and the habitat appears to qualify as a jurisdictional wetland.

**Wildlife.** Alkali meadow habitat supports many wildlife species that occur in nearby upland sites. When flooded, these meadows attract waterfowl and shorebirds. During dry periods, alkali meadows provide habitat for upland bird species, such as western meadowlarks and loggerhead shrikes, and many small mammals.

**Distribution.** Alkali meadow occurs in the floodplains along the east branch and tributaries of Alamo and Coyote Creeks and in Hidden Valley (Figure 11-1).

### **Seeps**

**Vegetation.** Seeps are areas of permanently moist or wet soils and are often associated with grasslands, meadows, or perennial drainages. In Dougherty Valley, approximately 70 seeps occur on sideslopes near small landslides, adjacent to Alamo and Coyote Creeks and tributaries (LSA Associates 1990, 1991a). The largest concentration of seeps (approximately 26) occurs in Hidden Valley in the northeast portion of the planning area



(LSA Associates 1990). Seeps in this area form a mosaic with alkali meadow wetlands and scalds.

Seeps in the planning area are vegetated with rushes, sedges, rabbitsfoot grass, aster, beardless wildrye, and bristly oxtongue.

This community would most likely qualify as a jurisdictional wetland because of the prevalence of wetland indicators, such as hydrophytic vegetation (rushes and sedges) and wetland hydrology (saturated soils during summer months). Seeps provide similar values to those described for freshwater marshes and thus are considered important natural communities.

**Wildlife.** Seeps provide foraging habitat and cover for aquatic invertebrates and amphibians. Aquatic invertebrates inhabiting seeps are fed on by small mammals, amphibians, reptiles, and insectivorous birds.

**Distribution.** Seeps are widely distributed throughout the planning area (Figure 11-1).

### **Perennial Drainages**

**Vegetation.** Perennial drainages usually contain freshwater marsh vegetation along the upper banks and either duckweed and water milfoil or no vegetation in the channel.

In unvegetated portions of the perennial drainages, the community would most likely qualify as other waters of the United States. Where duckweed, water milfoil, and other emergent vegetation occurs, the drainage would qualify as a jurisdictional wetland. This community is considered an important natural community for the same reasons discussed for other potential wetlands.

**Wildlife.** Wildlife values for perennial drainages are similar to freshwater marsh.

**Distribution.** Perennial drainages in Dougherty Valley include such areas as the main branch of Alamo Creek, portions of east branch of Alamo Creek, and Coyote Creek. These drainages receive runoff throughout the year from developed areas, such as Canyon Lakes Development (LSA Associates 1991a) (Figure 11-1).

### **Seasonal Drainages**

**Vegetation.** Seasonal drainages transport runoff and direct precipitation to higher order creeks and drainages. Shallow drainages with an ephemeral water source support mostly upland vegetation with scattered hydrophytic species. Typical dominants include soft chess, ripgut brome, wild rye, barley, and yellow star-thistle. Deeply incised drainages are either unvegetated or support arroyo willows in scattered locations.

Seasonal drainages can be important natural communities by providing important habitat to plant and wildlife species and performing important ecological functions, such as water filtration. Most of the seasonal drainages in the planning area perform these functions.

**Wildlife.** Seasonal drainages in the planning area may provide seasonal habitats for amphibians; small mammals, such as raccoons and striped skunks; and waterbirds, such as egrets and herons that feed on amphibians, aquatic reptiles, and invertebrates.

**Distribution.** Seasonal drainages occur as tributaries of perennial drainages in Dougherty Valley (Figure 11-1).

### **Stock Ponds**

**Vegetation.** Stock ponds in the planning area are either unvegetated or vegetated with freshwater marsh species and willow thickets. In shallow portions of the stock pond, submerged or floating aquatic vegetation, such as water milfoil and duckweed, form dense growths. Algal growth occurs on the surface of some ponds and along pond perimeters below the receding water line.

Stock ponds that are vegetated may qualify as jurisdictional wetlands; unvegetated stock ponds may be considered jurisdictional other waters of the United States. Stock ponds in the planning area can provide an important perennial water source to dependent plant and wildlife species and can support important natural communities.

**Wildlife.** Stock ponds were developed to provide drinking water for livestock, but they greatly enhance wildlife diversity in the area. Waterbirds, including a variety of waterfowl and shorebird species, use the ponds in winter. Mallards, gadwall, ring-necked ducks, bufflehead, and common goldeneye use the ponds for foraging and resting. Other water-dependent animals also forage or breed at stock ponds in the planning area, including the great blue heron, snowy egret, American coot, greater yellowlegs, belted kingfisher, bullfrog, and Pacific treefrog.

**Distribution.** At least 10 stock ponds occur throughout Dougherty Valley in open annual grassland areas and along drainages (LSA Associates 1991a). Two ponds have been created along the east branch of Alamo Creek (Figure 11-1).

### **Special-Status Species**

Special-status species are plants and animals legally protected under the state and federal Endangered Species Acts or other regulations, and species that are considered sufficiently rare by the scientific community to qualify for such listing. Special-status plants are species in the following categories:

- plants listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (50 CFR 17.12 [listed plants] and various notices in the Federal Register [proposed species]);

- plants that are Category 1 or 2 candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (55 CFR 6184, February 21, 1990);
- plants listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 CCR 670.5);
- plants listed under the California Native Plant Protection Act (Cal. Fish and Game Code, Section 1900 et. seq.);
- plants that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines, Section 15380);
- plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (Lists 1b and 2 in Smith and Berg 1988);
- plants listed by CNPS as plants about which more information is needed to determine their status, and plants of limited distribution (Lists 3 and 4 in Smith and Berg 1988), which may be included as special-status species on the basis of local significance or recent biological information; and
- plants listed as sensitive by the local U.S. Forest Service region (Forest Service Manual 2670) or U.S. Bureau of Land Management resource area.

Special-status animals are species in the following categories:

- animals listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (50 CFR 17.11 [listed animals] and various notices in the Federal Register [proposed species]);
- animals that are Category 1 or 2 candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (54 CFR 554, January 6, 1989);
- animals that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines, Section 15380);
- animals listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 CCR 670.5);
- animal species of special concern to the California Department of Fish and Game (Remsen 1978 [birds] and Williams 1986 [mammals]);
- animals fully protected in California (Cal. Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]); and
- animals listed as sensitive by the local U.S. Forest Service region (Forest Service Manual 2670) or U.S. Bureau of Land Management resource area.



## **Special-Status Plant Species**

A total of 18 special-status plant species have the potential to occur in the planning area (Table 11-1). This assessment is based on a records search of the NDDDB (1991), a literature search that included Smith and Berg (1989), and onsite habitat suitability evaluations conducted by Jones & Stokes Associates on December 17, 1991. No special-status plant occurrences have been reported previously in the Dougherty Valley.

Field surveys were conducted by LSA Associates (1987, 1990, 1991), Ecological Analysts (1981), and EIP Associates (1990). The surveys targeted 16 of the 18 populations but did not search for two halophytic species, San Joaquin spearscale and brittlescale. These species occur in alkali meadows, a habitat type that is very limited and in degraded condition in the planning area. Although San Joaquin spearscale and brittlescale were not targeted during previous rare plant surveys, the probability of occurrence of these two species appears unlikely based on the limited extent of alkali meadow and the degraded condition of the alkali meadow habitat at the site. Although the planning area was repeatedly searched for special-status plants, none were located during surveys.

## **Special-Status Wildlife Species**

Special-status wildlife species known to occur or with potential to occur in the planning area are listed in Table 11-2 and are described below. Locations of special-status wildlife species sighted in the planning area are shown in Figure 11-2.

The following special-status wildlife species were observed breeding or assumed breeding in the planning area: California red-legged frog, western pond turtle, burrowing owl, tricolored blackbird, and American badger. The golden eagle, black-shouldered kite, prairie falcon, northern harrier, and ferruginous hawk were observed foraging in the planning area. Suitable habitat exists for the curved-footed hygroplitis diving beetle, California tiger salamander, California red-legged frog, western pond turtle, golden eagle, black-shouldered kite, prairie falcon, northern harrier, ferruginous hawk, burrowing owl, grasshopper sparrow, tricolored blackbird, San Joaquin kit fox, and American badger.

Several special-status wildlife species could be present in the planning area, but their presence is unlikely because suitable habitat is lacking or subject to human disturbance. Table 11-2 lists these species, their habitat requirements and geographic distributions, known or expected occurrences in the region, and reasons for decline or concern. These species include the California linderiella, longhorn fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, molestan blister beetle, molestan blister beetle, California horned lizard, Alameda whipsnake, San Joaquin pocket mouse, and San Pablo vole. None of these species were observed during field surveys, and they are not expected to occur in the planning area (Contra Costa County Planning Department 1987; LSA Associates 1989, 1990, 1991b; EIP Associates 1990; WESCO 1991a, 1991b, 1991c; Jones & Stokes Associates 1991).

Table 11-1. Special-Status Plant Species Known or Suspected to Occur in the  
Dougherty Valley Planning Area

Species	Status <sup>a</sup>		Habitat Association	Reason for Special-Status Designations	Period of Identification
	Federal/State/CNPS	Distribution <sup>b</sup>			
<i>Amsinckia grandiflora</i> Large-flowered fiddleneck	E/E/1b	Historically reported in foothills of Mt. Diablo Range in Alameda, Contra Costa, and San Joaquin Counties; currently known from two sites near Corral Hollow, about 17 miles (27 kilometers) southwest of the study site	Lower portions of steep, protected, north- and east-facing slopes in grasslands and oak woodlands	Recent declines possibly attributable to urban land conversions; fire suppression; effects of aggressive, non-native species that dominate grasslands; and preferential livestock grazing	March-April
<i>Atriplex cordulata</i> Heartscale	C2/--/3	San Joaquin and southern Sacramento Valleys in Contra Costa, Solano, Glenn, Colusa, Stanislaus, San Joaquin, Merced, Madera, Fresno, and Tulare Counties (Hall and Clements 1923, Berg pers. comm.)	Alkali sink seasonal wetlands; scalds and sparsely vegetated sites in valley sink scrub, alkali meadow, and alkali grassland communities	Has suffered substantial reductions in habitat attributable to urban and agricultural land conversions; sensitive to livestock grazing	June-August
<i>Atriplex depressa</i> Brittlescale	C2/--/3	Central Valley in Glenn, Colusa, Fresno, Madera, Merced, Stanislaus, Tulare, and Yolo Counties (Berg and Taylor pers. comms.)	Alkali sink seasonal wetlands; scalds and sparsely vegetated sites in valley sink scrub, alkali meadow, and alkali grassland communities	Has suffered substantial reductions in habitat attributable to urban and agricultural land conversions; sensitive to livestock grazing	June-August
<i>Atriplex patula</i> ssp. <i>spicata</i> San Joaquin spearscale	C2/--/3	Central Valley and adjacent valleys of inner Coast Ranges in Alameda, Contra Costa, Colusa, Glenn, San Benito, Solano, and Yolo Counties (Berg pers. comm.)	Alkali sink seasonal wetlands; scalds and sparsely vegetated sites in valley sink scrub, alkali meadow, and alkali grassland communities	Has suffered substantial reductions in habitat attributable to urban and agricultural land conversions; sensitive to livestock grazing	March-July

Table 11-1. Continued

Species	Status <sup>a</sup>	Distribution <sup>b</sup>	Habitat Association	Reason for Special-Status Designations	Period of Identification
	Federal/State/CNPS				
<i>Cordylanthus mollis</i> ssp. <i>hispidus</i> Hispid bird's beak	C2/--/1b	Southern Sacramento Valley in Placer County south to Kern County in southern San Joaquin Valley; Livermore Valley about 8 miles (13 kilometers) south of Kellogg Creek watershed, nearest reported occurrence	Seasonal wetlands in alkali sinks with valley sink scrub, alkali meadow, and alkali marsh communities	Has suffered substantial reductions in habitat attributable to urban and agricultural land conversions; sensitive to livestock grazing	June-August
<i>Cordylanthus palmatus</i> Palmate-bracted bird's beak	E/E/1b	Widespread but infrequent in southern Sacramento and northern San Joaquin Valleys; extant at five sites, including Livermore Valley, 8 miles (13 km) south of Kellogg Creek watershed, nearest reported occurrence	Seasonal wetlands in alkali sinks with valley sink scrub, alkali meadow, and alkali marsh communities	Has suffered substantial reductions in habitat attributable to urban and agricultural land conversions; sensitive to livestock grazing	June-August
<i>Delphinium recurvatum</i> Recurved larkspur	C2/--/1b	Historically widespread in San Joaquin Valley and adjacent Coast Range foothills from Solano County to Kern County	Seasonal alkali wetlands and protected aspects of grasslands with alkali soils	Has suffered substantial reductions in habitat attributable to urban and agricultural land conversions	March-May



Table 11-1. Continued

Species	Status <sup>a</sup>		Habitat Association	Reason for Special-Status Designations	Period of Identification
	Federal/State/CNPS	Distribution <sup>b</sup>			
<i>Eriogonum truncatum</i> Mt. Diablo buckwheat	C2/--/1b	Northern portion of Mt. Diablo Range in Alameda, Contra Costa, and Solano Counties; nearest sitings to Kellogg Creek watershed include Mt. Diablo, 6 miles (10 kilometers) northwest and Patterson Pass, 6 miles (10 kilometers) south	Bedrock outcrops, rock scree, or thin, rocky soil in grassland, oak woodland, and chaparral communities; common on serpentine on Mt. Diablo	Many historic populations cannot be relocated; occurs within rapidly expanding urban area	Late March-May
<i>Eschscholzia rhombipetala</i> Diamond-petaled California poppy	C2/--/1b	Occurs in two population centers in southern Coast Ranges: San Luis Obispo County and Stanislaus, San Joaquin, Contra Costa, and Alameda Counties; historic population from "hills south of Byron" (Natural Diversity Data Base 1989), nearest reported occurrence of Kellogg Creek watershed	Bedrock outcrops, rock scree, or thin, rocky soil in grassland, oak woodland, and chaparral communities	Species widespread but spotty; threats stem from low population numbers; recent declines documented, possibly affected by livestock grazing	Late March-May
<i>Fritillaria agrestis</i> Stinkbells	C3c/--/4	Northern and southern Coast Ranges from San Luis Obispo County to Mendocino County	Heavy clay soils of valley bottoms and canyon slopes in grassland and oak woodland communities	Known from relatively few populations based on its wide geographic range; sensitive to intensive livestock grazing	March-April
<i>Fritillaria liliacea</i> Fragrant fritillary	C2/--/4	Coast Ranges and adjacent western edge of Central Valley from San Benito County to Sonoma County	Heavy clay soils of valley bottoms and canyon slopes in grassland and oak woodland communities	Low number of populations; recent losses attributable to urban and agricultural development; highly sensitive to grazing	March-April

Species	Status <sup>a</sup>		Habitat Association	Reason for Special-Status Designations	Period of Identification
	Federal/State/CNPS	Distribution <sup>b</sup>			
<i>Hesperolinon breweri</i> Brewer's dwarf flax	C2/--/1b	Northern Mt. Diablo Range in Contra Costa and Alameda Counties and Vaca Mountains in Solano and Napa Counties	Bedrock outcrops; rock scree (serpentine on Mt. Diablo); clay soils with low herb cover; annual grasslands and openings in various oak woodland and chaparral communities	Evidence of recent declines unknown; natural distribution restricted within urbanizing counties but most occurrences within protected or undevelopable sites	April-May
<i>Holocarpha macradenia</i> Santa Cruz tarplant	C1/E/1b	Northern Coast Ranges in Monterey, Santa Cruz, Alameda, and Contra Costa Counties	Coastal prairie and valley foothill grasslands	Threatened by urbanization and agricultural land conversion	June-October
<i>Lasthenia conjugens</i> Contra Costa goldfields	C1/--/1b	Historically widespread in Coast Ranges from Mendocino to Santa Barbara Counties; believed extant in Alameda, Contra Costa, Solano, and Napa Counties; nearest reported population from near Byron, 5 miles (8 kilometers) northeast of Kellogg Creek watershed	Seasonal wetlands, including vernal pools, vernal meadows, and riverbanks; alkaline, clay-based soils typical	Limited number of extant occurrences compared with historic extent; occurrences within areas of rapid urban and agricultural expansion	March-April

Table 11-1. Continued

Species	Status <sup>a</sup>	Distribution <sup>b</sup>	Habitat Association	Reason for Special-Status Designations	Period of Identification
	Federal/State/CNPS				
<i>Sanicula saxitalis</i> Rock sanicle	C2/R/1b	Inner Coast Ranges from Santa Clara and Contra Costa Counties	Mixed evergreen woodlands and chaparral; found on talus slopes and scree slopes	Limited geographic range and small number of occurrences	May-June
<i>Streptanthus hispidus</i> Mt. Diablo jewel flower	C2/--/1b	Slopes of Mt. Diablo above 2,000 feet (610 meters)	Bedrock and rock scree in oak woodland and chaparral communities; colonizes burned chaparral (Bowerman 1944)	Limited geographic range and small number of occurrences	April-May
<i>Trifolium amoenum</i> Showy Indian clover	C2/--/1a	Historically widespread in Coast Ranges from Santa Clara County north to Mendocino County; currently believed extinct; nearest reported site 10 miles (16 kilometers) west of Tracy, just east of Kellogg Creek watershed	Mesic, protected locales in grasslands and oak woodlands	No extant populations known; apparently eliminated by urban land conversion, livestock grazing, and possibly competition with non-native grasses	March-April
<i>Tropidocarpum capparideum</i> Caper-fruited tropidocarpum	C2/--/1a	Historically widespread in Central Valley and bordering foothills from Monterey to Glen Counties; numerous sitings from plains surrounding Mt. Diablo; nearest siting near Byron, about 6 miles (10 kilometers) east of Kellogg Creek watershed	Grassy hills and plains in grassland and oak woodland communities; apparently common on alkaline-clay soils	No extant populations known; apparently eliminated by land conversion and livestock grazing	March-April



Species	Status <sup>a</sup>		Habitat Association	Reason for Special-Status Designations	Period of Identification
	Federal/State/CNPS	Distribution <sup>b</sup>			
<i>Tuctoria mucronata</i> Crampton's tuctoria	E/E/1b	Known from a limited portion of Solano County	Claypan vernal pools with heavy-alkaline soils	Naturally limited distribution and habitat loss from agricultural land conversions	July-August

<sup>a</sup> Status definitions:

Federal: U.S. Fish and Wildlife Service (55 FR 6184 February 21, 1990)

E = Listed as endangered under the federal Endangered Species Act.

C1 = Category 1 candidate for federal listing. Category 1 includes species for which USFWS has on file enough substantial information on biological vulnerability and threat to support proposals to list them.

C2 = A candidate species under review for federal listing. Category 2 includes species for which the USFWS presently has some information indicating that proposing to list them as threatened or endangered is possibly appropriate, but for which further biological research and field study are needed to determine biological vulnerability and threats. Note: Category 2 species are not necessarily less rare or less endangered than Category 1 species. The distinction relates to the amount of data available and is therefore administrative and not biological.

C3c = No longer a candidate for federal listing (may still qualify for consideration under state law).

State: California Department of Fish and Game (1988)

E = Listed as endangered under the state Endangered Species Act.

R = listed as rare under the California Endangered Species Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.

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CNPS: California Native Plant Society (Smith and Berg 1988)

- 1a = Plants presumed extinct.
- 1b = Considered rare and endangered in California. (Species probably meets state definitions for listing as rare, threatened, or endangered.)
- 3 = Species for which additional information is required on rarity and threats. (Species may meet state criteria for listing under the State Endangered Species Act, or candidate status under the federal act.)
- 4 = Plants considered rare but not endangered. (Species do not presently meet state criteria for listing under the State Endangered Species Act.)

<sup>b</sup> Source: Smith and Berg 1988.

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Table 11-2. Special-Status Wildlife Species that Could Occur in the  
Dougherty Valley Planning Area

Species	Legal Status <sup>a</sup>		Distribution	Preferred Habitat	Occurrence in the Planning Area	Reason for Decline
	Federal/State/County					
San Francisco forktail damselfly <i>Ischnura gemina</i>	C2/--/--		Point Reyes peninsula, San Francisco, South Bay, East Bay to Berkeley, Suisun City	Small shallow ponds, slow streams, marshes, canals, permanent water sources with some emergent vegetation	Potential habitat occurs in seasonal and permanent wetlands throughout the planning area	Habitat loss and changes in water flows
California linderiella <i>Linderiella occidentalis</i>	C1/--/--		East side of Central Valley from east of Red Bluff to east of Madera, across the Sacramento area, and through the central and south Coast Ranges from Lake County to Riverside County	Common in vernal pools; also found in sandstone rock outcrop pools	No suitable habitat exists within the planning area	Habitat loss to agricultural and urban development
Longhorn fairy shrimp <i>Branchinecta longiantenna</i>	C1/--/--		Eastern margin of central Coast Ranges from Contra Costa County to San Luis Obispo County	Small, clear pools in sandstone rock outcrops or clear to moderately turbid clay- or grass-bottomed pools	No suitable habitat exists within the planning area	Habitat loss
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	C1/--/--		Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County; isolated populations also in Riverside County	Common in vernal pools; also found in sandstone rock outcrop pools	No suitable habitat exists within the planning area	Habitat loss to agricultural and urban development
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	2R/--/--		Sacramento Valley	Vernal pools	No suitable habitat exists within the planning area	Habitat loss to agricultural and urban development
Curved-footed hygrotylus diving beetle <i>Hygrotylus curvipes</i>	C2/--/--		Western side of the San Joaquin Valley from Oakley in Contra Costa County south to Alameda County	Small ponds, roadside ditches, vernal pools, and pools in intermittent streams, most of which dry up during the summer and support salt-tolerant vegetation	Potential habitat (wetlands) exists throughout the planning area	May be more abundant than once thought
Moetan blister beetle <i>Lytta moesta</i>	C2/--/--		Inhabits the Central Valley from Contra Costa County to Kern and Tulare Counties	Moist, loose soils in seasonal wetlands or vernal pools	No suitable habitat exists within the planning area	Loss of vernal pools and other seasonal wetlands



Table 11-2. Continued

Species	Legal Status <sup>a</sup>		Distribution	Preferred Habitat	Occurrence in the Planning Area	Reason for Decline
	Federal/State/County					
Molestan blister beetle <i>Lytta molesta</i>	C2/--		Inhabits the Central Valley from Contra Costa County to Kern and Tulare Counties	Moist, loose soils in seasonal wetlands or vernal pools	No suitable habitat exists within the planning area	Loss of vernal pools and other seasonal wetlands
California tiger salamander <i>Ambystoma tigrinum californiense</i>	C2/SSC/-		Butte County in the north to Santa Barbara County in the south	Open woodlands and grasslands for hibernation; ponds or pools in streams for breeding	None observed during surveys; potential breeding habitat occurs in seasonal wetlands; potential upland habitat exists throughout the planning area	Loss of grasslands and wetlands to agricultural and urban uses
California red-legged frog <i>Rana aurora draytoni</i>	C1/SSC/-		British Columbia south to northern Baja California	Permanent aquatic habitats, such as creeks and ponds, with emergent and subemergent vegetation; may estivate in burrows during dry periods	Observed in Alamo Creek, west branch of Alamo Creek, and stock ponds in the planning area	Habitat destruction and competition and predation by fish and bullfrogs
Western pond turtle <i>Clemmys marmorata</i>	C1/SSC/DS		Western Washington south to Baja California	Still waters such as ponds, reservoirs, and sluggish streams	Observed in Alamo Creek south of the planning area; potential habitat includes Alamo Creek, west branch of Alamo Creek, and most stock ponds; grasslands adjacent to creeks and stock ponds are suitable breeding habitat	Loss of aquatic habitat to agricultural development, water diversion, stream channelization, and urbanization; loss of breeding habitat adjacent to aquatic habitat
California horned lizard <i>Phrynosoma coronatum frontale</i>	--/SSC/-		Sacramento Valley and adjacent foothills south to southern California	Grasslands, brushlands, and woodlands with loose soils	No suitable habitat; none observed	
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	C2/T/-		Alameda and Contra Costa Counties	Valleys, foothills, and low mountains in econtonal areas of dry coastal scrub with grassland, oak woodland, or riparian vegetation	No suitable habitat; none observed	Habitat loss caused by urban expansion
Golden eagle <i>Aquila chrysaetos</i>	--/SSC/DS		Resident throughout California	Nests in cliffs or trees, preferably overlooking grasslands where prey is available	Nearest known nesting site is approximately 4 miles southeast of the planning area	Habitat loss, human persecution, and declines in prey species abundance

Species	Legal Status <sup>a</sup>		Distribution	Preferred Habitat	Occurrence in the Planning Area	Reason for Decline
	Federal/State/County					
Black-shouldered kite <i>Elanus caeruleus</i>	--/CP/DS		Open habitats throughout California, excluding deserts	Nests in riparian habitats, woodlands, and isolated trees; forages in agricultural fields, grasslands, and wetlands	Roosting site along Coyote Creek; common wintering visitor; potential nesting habitat along Coyote Creek, Alamo Creek, and the west branch of Alamo Creek	Loss of wetland habitat; increasing in recent years
Prairie falcon <i>Falco mexicanus</i>	--/SSC/DS		Throughout California in suitable habitat	Nests on cliff ledges; feeds on insects, small mammals, and birds	No suitable nesting habitat; uncommon visitor during migration	Pesticide contamination, human persecution, decline in prey species abundance
Northern harrier <i>Circus cyaneus</i>	--/SSC/--		Lowlands and valleys throughout California	Nests in dense grasslands and wetlands; forages in wetlands, grasslands, and agricultural fields	Grasslands and wetlands support suitable foraging habitat; wetlands (emergent vegetation) provide suitable nesting habitat	Loss of wetlands and grasslands
Ferruginous hawk <i>Buteo regalis</i>	C2/--/--		Winters in the Central Valley and Sierra Nevada and Coast Ranges foothills	Open grasslands with perch sites	Regular winter visitor; grasslands provide suitable foraging habitat	Conversion of grasslands to agricultural crops and human disturbances
Burrowing owl <i>Athene cunicularia</i>	--/SSC/--		Open habitats throughout California	Open, dry, and nearly level grassland or prairie habitat	Four burrowing owls were observed in the northwest section of the Shapell property (WESCO 1991); two owls were observed at Camp Parks; two potential dens at the Windemere property	Habitat loss
Tricolored blackbird <i>Agelaius tricolor</i>	C2/--/--		Lowlands and valleys throughout California	Breeds in freshwater marshes and blackberry thickets; forages in wetlands, grasslands, agricultural fields, and irrigated pastures; known to forage up to 5 miles from nesting colony	Observed and potentially nesting at the south branch, central branch, and east branch of Alamo Creek; grasslands near nesting sites are suitable foraging habitat	Loss of wetland breeding habitat, nest disturbance, aerial spraying of herbicides and pesticides, and mortality from poisoned grain (Terres 1987, U.S. Fish and Wildlife Service 1985)
Grasshopper sparrow <i>Ammodramus savannarum</i>	--/--/DS		Foothills of California	Grasslands	None observed; grasslands provide suitable breeding habitat	Loss of grassland habitat by development in southern California

Species	Legal Status <sup>a</sup>		Preferred Habitat	Occurrence in the Planning Area	Reason for Decline
	Federal/State/County	Distribution			
San Pablo vole <i>Microtus californicus sanpabloensis</i>	C2/--	San Pablo Creek, Contra Costa County	Salt marshes	No suitable habitat within the planning area	Low tidal wetlands for breeding, feeding, and cover
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	E/T/--	Portions of western Kern, eastern San Luis Obispo, western Tulare, Kings, western Fresno, western Merced, western Stanislaus, southwestern San Joaquin, Alameda, Contra Costa, Santa Clara, San Benito, Monterey, and extreme northern Santa Barbara Counties	Grasslands, saltbush, open woodlands, and alkaline sink valley floor	Potentially occupied habitat occurs in the extreme central portion of the planning area; suitable breeding habitat occurs throughout the planning area; no direct observations (WESCO 1991)	Habitat loss is major factor; also road kills, shooting, poisoning, and predation by coyotes
American badger <i>Taxidea taxus</i>	--/SSC/--	Throughout California except coastal forests and cultivated agricultural lands	Grasslands and oak savannas	Two badgers were observed at Camp Parks during 1990 (WESCO 1991)	Loss of lowland grassland habitats; deliberate killing; direct and secondary poisoning from rodent and predator poisoning; badger control programs

<sup>a</sup> Status explanations (see the "Definitions of Special-Status Species" section above for citations):

#### Federal

-- = no designation.

E = listed as endangered under the federal Endangered Species Act.

C1 = Category 1 candidate for federal listing. Category 1 includes species for which USFWS has on file enough substantial information on biological vulnerability and threat to support proposals to list them.

C2 = Category 2 candidate for federal listing. Category 2 includes species for which USFWS has some biological information indicating that listing may be appropriate but for which further biological research and field study are usually needed to clarify the most appropriate status. Category 2 species are not necessarily less rare, threatened, or endangered than Category 1 species or listed species; the distinction relates to the amount of data available and is therefore administrative, not biological.

2R = recommended by USFWS for inclusion in the next update of the candidate species list.



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**State**

-- = no designation.

T = listed as threatened under the California Endangered Species Act.

CP = fully protected under the California Fish and Game Code.

SSC = species of special concern.

**County**

-- = no designation.

DS = identified as a depleted species in Contra Costa County.

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**San Francisco Forktail.** The San Francisco forktail (a relative of damselflies) occurs in ponded or slow-moving water. Suitable habitat is common in the planning area. No forketails were recorded in the planning area, and no surveys were conducted to determine their presence.

**Curved-Footed Hygrotus Diving Beetle.** The curved-footed hygrotus diving beetle is a rare California species that until 1988 was known only from one pond near Oakley in Contra Costa County (Jones & Stokes Associates 1991, Natural Diversity Data Base 1991). Recent studies have extended the range of the beetle approximately 12 miles south from Oakley to the Alameda County line (Jones & Stokes Associates 1991). The curved-footed hygrotus diving beetle occupies ponds, slowly flowing streams, and drying pools in intermittent streams (Jones & Stokes Associates 1991).

Suitable habitat is common in the planning area. Stock ponds and slowly flowing streams (e.g., the west branch of Alamo Creek and Alamo Creek) in the planning area are considered potential habitat for the curved-footed hygrotus diving beetle. No surveys have been conducted for this species in the planning area (Figure 11-1).

**California Red-Legged Frog.** The California red-legged frog was petitioned for federal listing as threatened or endangered and could be listed before implementing the project.

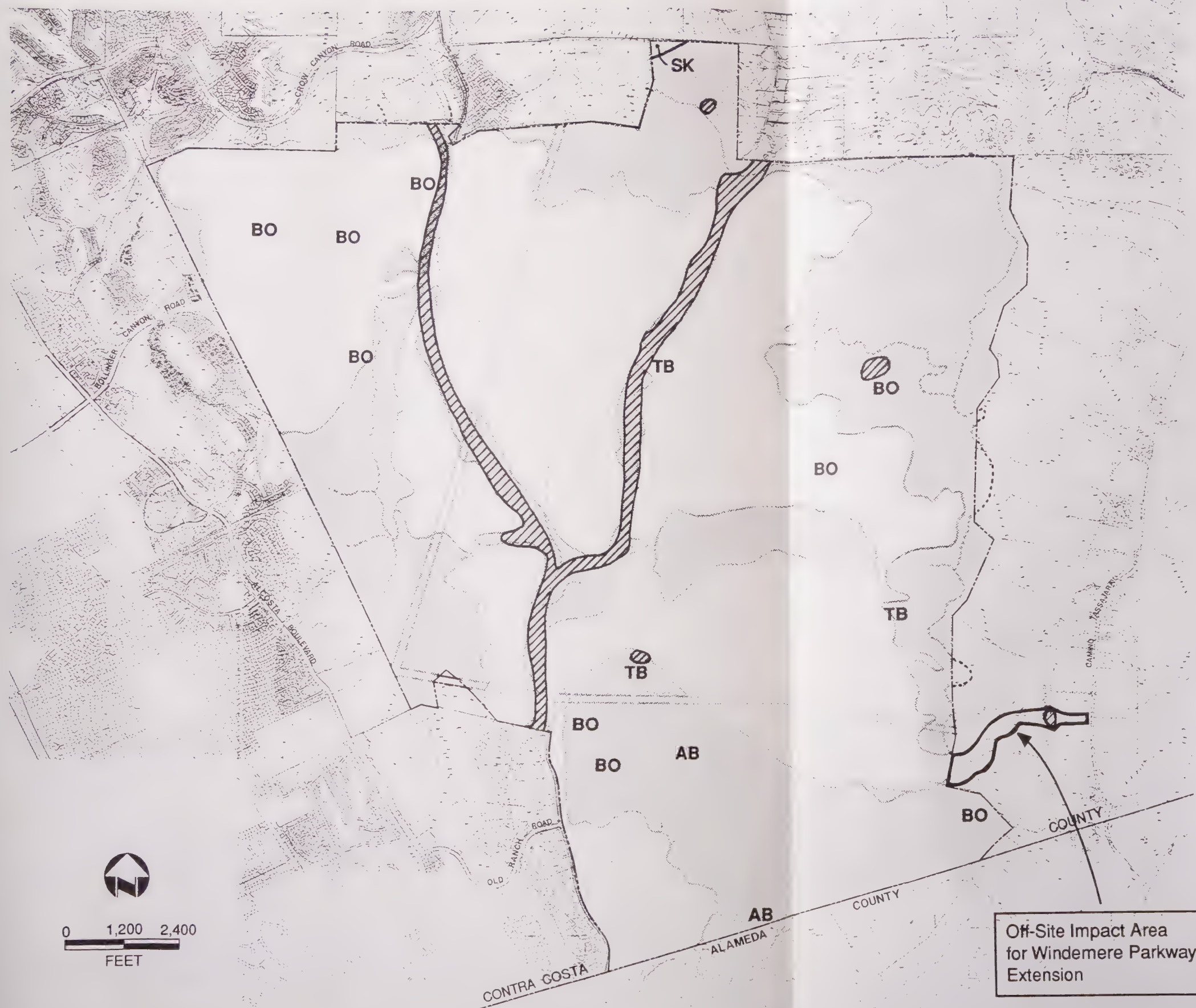
California red-legged frogs use permanent or nearly permanent aquatic habitats, such as streams and ponds (Stebbins 1985). Adults are highly aquatic when active but are less restricted to permanent water than other frog species (Brode and Bury 1984); adults may estivate during dry periods in rodent burrows or cracks in the soils (Hansen pers. comm.). Red-legged frog populations have declined in California because of habitat loss and degradation and competition and predation by the introduced bullfrog and fish species (Moyle 1973).

Suitable habitat occurs throughout the planning area in the creeks and ponds and is probably distributed in all the creeks of the planning area (LSA Associates 1989) (Figure 11-2). Red-legged frogs have been found in stock ponds (LSA Associates 1990), West Branch of Alamo Creek, and Alamo Creek (Ecological Services 1981, LSA Associates 1989).


**California Tiger Salamander.** The California tiger salamander was petitioned for listing under the federal Endangered Species Act and could be listed. Adult California tiger salamanders are terrestrial and spend most of the year in underground burrows, emerging for only brief periods to breed (Stebbins 1985). Breeding occurs in temporary and permanent waters in grassland and open woodland habitats (Stebbins 1985). Individuals may travel as far as 1 mile to breeding sites during the first heavy rains, mainly from December to February (Stebbins 1985, Brode pers. comm.). The range of the tiger salamander has been reduced in much of the Central Valley because of conversion of grasslands to agricultural and urban uses (Stebbins 1985, Brode pers. comm.). Suitable habitat in Contra Costa County has been reduced by residential development.



Figure 11-2.  
Special-Status Wildlife  
Species Locations and  
Habitats in the Dougherty  
Valley Planning Area



**LEGEND**

 California Red-Legged Frog and Western Pond Turtle Aquatic Habitat


BO Burrowing Owl Locations

TB Tricolored Blackbird Locations

AB American Badger Locations

SK San Joaquin Kit Fox Habitat (Designated as Occupied)

 Developed Impact Area (Mass Grading)

 Areas in Which Grading Will Be Limited to Development of Special Facilities

Sources: Contra Costa County Planning Department 1983; Ecological Analysts 1991; LSA Associates 1989,1990; EIP 1990; WESCO 1991





Suitable breeding and overwintering habitat is present in grasslands and ponds and slow-moving streams throughout the planning area. Potential breeding habitat at the Windemere property consists of 11 stock ponds, eight pools within intermittent drainages, and pools within Alamo Creek (LSA Associates 1990). Upland, nonbreeding habitat for the tiger salamander is present in the surrounding annual grasslands (LSA Associates 1990). No tiger salamanders larvae were found during the April and May 1990 surveys at the Windemere property (LSA Associates 1990). Potential breeding habitat at the Shapell property consists of isolated pools occurring within the portion of the west branch of Alamo Creek and seven stock ponds occurring within the portion of the Shapell property area west of Dougherty Road (LSA Associates 1991). Surveys for the salamander were conducted in June and July 1989 at the Shapell property (LSA Associates 1991). Four of the potential breeding ponds were dry during the field surveys. Although the planning area is suitable habitat for the tiger salamander, the 1989 and 1990 studies indicate that the salamanders do not occur in the planning area (LSA Associates 1990, 1991; Sproul pers. comm.).

**Western Pond Turtle.** The planning area is an area of intergradation between the southwestern and northwestern pond turtle subspecies. The southwestern subspecies is a species of special concern and a federal Category 1 candidate species, and the northwestern subspecies is a federal Category 2 candidate species for federal listing as threatened or endangered. USFWS is considering new information regarding the taxonomic status and may drop the subspecies designation (Brewer pers. comm.). The western pond turtle was petitioned for listing under the federal Endangered Species Act and could be listed before implementing the project.

The southwestern subspecies' range extends south along the California coast from San Francisco Bay to Baja California (Stebbins 1985). The pond turtle is thoroughly aquatic, preferring the quiet waters of ponds, reservoirs, and sluggish streams (Stebbins 1985). Upland habitat is required for breeding turtles, and the pond turtles may travel 0.25-0.5 mile upslope from a permanent water source to lay its eggs in grassland habitats (Brewer and Brode pers. comms.).

Pond turtles have been observed in the Alamo Creek drainage in the planning area (LSA Associates 1989, 1990). Suitable habitat for pond turtles occurs along Alamo Creek and West Alamo Creek and most stock ponds in the planning area (Environmental Analysts 1981, EIP Associates 1990) (Figure 11-2). The grasslands adjacent to creeks and ponds are suitable breeding habitat for pond turtles and they probably breed there. Suitable habitat exists at the Windemere site; none were found during surveys at Windemere in 1990 (LSA Associates 1990).

**Black-Shouldered Kite.** The black-shouldered kite occurs in open habitats throughout California, except the desert. The kite nests in riparian habitats, woodlands, and isolated trees and forages in wetlands, grasslands, and agricultural fields.

The kite is a common resident at the planning area. The riparian habitats provide suitable nesting habitat for the kite, and grasslands and dryland farmland provide suitable foraging habitat. Thirteen kites were observed roosting in a fenceline along the upper reach of Coyote Creek; whitewash under fence posts indicates that the roost site is used regularly

by kites (LSA Associates 1989). Nine kites were observed roosting on a snag at the lower end of Hidden Valley during Jones & Stokes Associates field surveys. Although no nesting kites were observed during the field surveys, the planning area is considered suitable nesting and foraging habitat for kites.

**Golden Eagle.** The golden eagle is a resident species throughout California. The golden eagle nests in cliffs or trees on the slopes of hills, preferably overlooking grasslands. Nesting eagle pairs will often use the same nest each year, while others move between nest sites within their breeding territory (Jones & Stokes Associates 1989, 1991). Eagles forage in unfragmented grasslands and oak savannas. The golden eagle is a species of concern because of habitat loss, persecution by humans, and declines in prey species abundance. Urban encroachment, including wind turbine development, reduces habitat suitability and increases mortality (Estep 1989, Biosystems Analysis 1991). The nearest known nesting golden eagle site is east of Dublin, approximately 1 mile south of the Contra Costa County Line. At least three nesting pairs of eagles were located in the Kellogg Creek watershed, approximately 7 miles east of the planning area (Jones & Stokes Associates 1991).

The planning area is considered low-quality nesting habitat for golden eagles because no cliffs or suitable trees on hillsides are present. No golden eagle active or inactive nests were observed during the field surveys (Environmental Analysts 1981, LSA Associates 1989, EIP Associates 1990, WESCO 1991).

The planning area is considered high-quality golden eagle foraging habitat. Eagles forage regularly throughout the planning area, and have been observed perching on power transmission lines at the planning area (LSA Associates 1989). At least four golden eagles were observed foraging at the planning area during this field survey.

**Northern Harrier.** Northern harriers are widespread during winter and less common during summer in coastal valleys. Harriers require dense, wet meadows and tall grasslands for nesting on flat or gently sloping terrain. They use open fields, grasslands, and agricultural areas for foraging (Call 1978).

The planning area supports suitable nesting and foraging habitat. Northern harriers were observed foraging regularly in the planning area (WESCO 1991). Suitable nesting habitat occurs in wetlands along perennial and seasonal drainages. The dryland farmed areas are unsuitable breeding sites but are suitable foraging sites.

**Ferruginous Hawk.** The ferruginous hawk winters in the Central Valley and the foothills of the Sierra Nevada and Coast Ranges. Ferruginous hawks forage in open grasslands with perch sites (mature trees and utility poles). The planning area is considered high-quality foraging habitat for ferruginous hawks; the species has been observed in the planning area during field surveys (LSA Associates 1989) and occurs there regularly.

**Prairie Falcon.** Prairie falcons occur throughout California in suitable habitats. They nest on cliff ledges and forage in open habitats, including grasslands, open brushlands, and rocky areas. The planning area is unsuitable breeding habitat for prairie falcons, because the site lacks suitable cliffs for nesting. The nearest known nest is approximately 4 miles



north of the planning area (LSA Associates 1989). The planning area is considered high-quality foraging habitat for prairie falcons, and the species has been observed foraging in the valley of the west branch of Alamo Creek (Environmental Analysts 1981, LSA Associates 1989).

**Burrowing Owl.** The burrowing owl was historically common throughout lowland California. However, a decline first noticed in the 1940s has continued to the present (Grinnell and Miller 1944, Remsen 1978). In the San Francisco Bay Area and central portion of the Central Valley (Yolo County south to Merced County), the burrowing owl population has declined by 65% since 1986 (DeSante pers. comm.). The population has declined primarily because of pesticides, rodent control programs, and habitat loss or degradation (Remsen 1978). The owls' nesting behavior makes them vulnerable to being hit by cars (especially fledglings), disturbance during road and levee maintenance operations, and general harassment by domestic pets and pedestrians (Remsen 1978).

Burrowing owls occur throughout the lowlands of California. They breed and roost in burrows, especially in abandoned ground squirrel burrows. Burrowing owls often nest in roadside embankments, on levees, and along irrigation canals. Burrowing owls prefer open dry, nearly level grassland or prairie habitat (Grinnell and Miller 1944).

During 1990 surveys, three potential nesting burrows and several owls were observed throughout the planning area (WESCO 1991). Two burrowing owls were observed during daytime transect surveys (Camp Parks), and four burrowing owls were observed during spotlight surveys (Shapell property) (Figure 11-2). (WESCO 1991.) Two to five nesting pairs of burrowing owls could exist in the planning area. Burrowing owl nesting was not confirmed during the field surveys, but the surveys were conducted late in the breeding season and the young could have fledged before the surveys were conducted. Additional surveys would be needed during the breeding season (March-early August) to determine the owls breeding status in the planning area.

**Grasshopper Sparrow.** The grasshopper sparrow breeding distribution includes the foothills and lowlands of California (Zeiner et al. 1990). The grasshopper sparrow is a local and uncommon species throughout its range and occurs in grasslands where the grazing intensity is moderate and shrub densities are low (Remsen 1978).

Grasslands in the planning area provide suitable breeding habitat for the grasshopper sparrow (LSA Associates 1989), but the dryland farmed areas are unsuitable because of the disturbance to vegetation. No grasshopper sparrows were observed during the field surveys (Environmental Analysts 1981, LSA Associates 1989).

**Tricolored Blackbird.** The tricolored blackbird is a candidate (Category 1) for listing under the California Endangered Species Act. The U.S. Fish and Wildlife Service is currently preparing a proposed rule to list the tricolored blackbird as endangered under the federal Endangered Species Act. The tricolored blackbird is a candidate for state listing as endangered under the California Endangered Species Act.

Tricolored blackbird populations have declined significantly in this century by dropping 90% from the 1930s to the 1980s. The sizes of colonies have also declined and have been replaced by smaller, fragmented colonies. The sizes of the largest colonies reported in the 1970s and 1980s averaged 10% of the adults contained in the largest colonies observed in the 1930s. The loss of wetland habitats, disturbance by humans near nesting colonies, and poisoning may be the primary reasons for the population decline (Beedy et al. 1991).

The tricolored blackbird's breeding range includes lowlands and valleys throughout California. This blackbird breeds in freshwater marshes and blackberry thickets and forages in wetlands, grasslands, agricultural fields, and pastures. Proximity to concentrated insect food supplies is probably the major factor in the selection of tricolor nesting sites (Neff 1937, Payne 1969, Beedy et al. 1991). The colonial nesting behavior demands that they exploit locally abundant food sources while minimizing the distance of their foraging flights (Crane and DeHaven 1977). They are known to forage up to 4 miles from the nesting colony during the breeding season. The lack of concentrated insect sources near suitable nesting sites could account for many observed tricolored nesting failures.

The stock ponds and wetlands along the main (central) branch of Alamo Creek are considered suitable breeding sites for the tricolored blackbird. The annual grasslands and dryland barley fields are considered high-quality foraging habitats for these blackbirds. Tricolored blackbirds were observed at three locations at the project site during the breeding season (EIP Associates 1990): at two ponds with abundant tules and cattails and along the main (central) branch of Alamo Creek (Figure 11-2). Tricolored blackbirds forage in the grasslands and dryland barley fields. Grasslands throughout the planning area also provide winter foraging habitat for the tricolored blackbird.

**American Badger.** The American badger occurs throughout California except in coastal forests and cultivated agricultural fields (Williams 1986). The badger breeds and forages in grasslands and oak savannas. The grasslands in the planning area are considered suitable breeding and foraging habitat for the badger. Two badgers were observed at Camp Parks during 1990 surveys (WESCO 1991) (Figure 11-2) and could occur throughout the planning area.

**San Joaquin Kit Fox.** Before 1930, the known range of the San Joaquin kit fox extended from Contra Costa and San Joaquin Counties in the north to Kern County in the south (Grinnell et al. 1937). Kit fox populations have substantially declined in the northern portion of the range in recent years (Jones & Stokes Associates 1989, 1990, Hall 1983).

The San Joaquin kit fox inhabits arid grasslands, alkali sinks, and open oak woodlands of the San Joaquin Valley and surrounding foothills (U.S. Fish and Wildlife Service 1983). In the northern portion of its range, the kit fox occurs primarily in foothill grasslands (Orloff et al. 1986, Jones & Stokes Associates 1991).

Kit foxes use burrows for resting, cover, and breeding. In the northern portion of their range, kit foxes mostly use burrows dug by other animals (Orloff et al. 1986), natural holes in drainages, and possibly culverts (Jones & Stokes Associates 1989). Natal dens can



usually be distinguished by the presence of scat, prey remains, and matted vegetation around the entrances. Occupation of transient dens is often difficult to determine from den observation. Kit foxes feed primarily on small mammals, such as mice, kangaroo rats, rabbits, and ground squirrels.

Habitat loss is the primary cause of decline of the kit fox in the northern portion of its range. Most of the preferred valley bottom grassland and alkali scrub habitats in the northern range have been eliminated by agricultural, suburban, and industrial development (U.S. Fish and Wildlife Service 1983). Direct poisoning and prey reduction were also suggested as major factors limiting kit fox occurrence in the remaining northern portion of its range (Orloff et al. 1986). Other factors that may affect kit fox populations include road kills, illegal shooting, trapping, lack of adequate denning sites, and interspecific competition with and predation by coyotes and red foxes (Jones & Stokes Associates 1991b).

The nearest known location recorded for the kit fox was approximately 2 miles north of the planning area at Blackhawk (Huffman pers. comm.) and approximately 5 miles to the east of the planning area (0.75 mile west of Collier Canyon Road [Natural Diversity Data Base 1991]).

WESCO conducted systematic surveys in 1990 to determine the presence and distribution of San Joaquin kit fox either by direct observation or by sign (i.e., den, scat, track) and to assess habitat suitability at the Dougherty Valley planning area. Followup surveys were conducted in 1991. Survey duration and intensity followed standard methodologies developed by Region 4 of the California Department of Fish and Game. Systematic survey methods included transect surveys, track station surveys, and spotlight surveys. Daytime transect surveys were conducted between August 20 and September 25, 1990. Linear transects spaced at approximately 100-foot intervals were walked to locate kit fox dens. (WESCO 1991a, 1991b, 1991c.)

No direct kit fox observations were made during 1990 field surveys, although 68 potential dens and five possible dens were identified during transect and track plate survey methods failed to indicate the presence of kit fox (WESCO 1991a). Supplemental surveys conducted in 1991 also did not indicate the presence of kit fox (WESCO 1991b).

### **Relevant Contra Costa County General Plan Policies**

The policies identified below were used to evaluate the consistency of the Contra Costa County General Plan to the DVSP.

- Policy 8-6. Significant trees, natural vegetation, and wildlife populations generally shall be preserved.
- Policy 8-7. Important wildlife habitats which would be disturbed by major development shall be preserved, and corridors for wildlife migration between undeveloped areas shall be retained.



- Policy 8-8. Significant ecological resources area in the County shall be identified and designated for compatible low-intensity land uses. Setback zones shall be established around the resource areas to assist in their protection.
- Policy 8-9. Areas determined to contain significant ecological resources, particularly those containing endangered species, shall be maintained in their natural state and carefully regulated to the maximum legal extent. Acquisition of the most ecologically sensitive properties within the County by appropriate public agencies shall be encouraged.
- Policy 8-10. Any development located or proposed within significant ecological resource areas shall ensure that the resource is protected.
- Policy 8-11. The County shall utilize performance criteria and standards which seek to regulate uses in and adjacent to significant ecological resource areas.
- Policy 8-12. Natural woodlands shall be preserved to the maximum extent possible in the course of land development.
- Policy 8-13. The critical ecological and scenic characteristics of rangelands, woodlands, and wildlands shall be recognized and protected.
- Policy 8-14. Development on hillsides shall be limited to maintain valuable natural vegetation, especially forests and open grasslands, and to control erosion. Development on open hillsides and significant ridgelines throughout the County shall be restricted, and hillsides with a grade of 26 percent or greater shall be protected through implementing zoning measures and other appropriate actions.
- Policy 8-15. Existing vegetation, both native and nonnative, and wildlife habitat areas shall be retained in the major open space areas sufficient for the maintenance of a healthy balance of wildlife populations.
- Policy 8-17. The ecological value of wetland areas, especially the salt marshes and tidelands of the bay and delta, shall be recognized. Existing wetlands in the County shall be identified and regulated. Restoration of degraded wetland areas shall be encouraged and supported whenever possible.
- Policy 8-21. The planting of native trees and shrubs shall be encouraged in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native wildlife, and ensure that a maximum number and variety of well-adapted plants are suitable in urban areas.

- Policy 8-22. Applications of toxic pesticides and herbicides shall be kept at a minimum and applied in accordance with the strictest standards designed to conserve all the living resources of the County. The use of biological and other non-toxic controls shall be encouraged.
- Policy 8-23. Runoff of pollutants and siltation into marsh and wetland areas from outfalls serving nearby urban development shall be discouraged. Where permitted, development plans shall be designed in such a manner that no such pollutants and siltation will significantly adversely affect the value or function of wetlands. In addition, berms, gutters, or other structures should be required at the outer boundary of the buffer zones to divert runoff to sewer systems for transport out of the area.
- Policy 8-24. The County shall strive to identify and conserve remaining upland habitat areas which are adjacent to wetland areas are critical to the survival and nesting of wetland species.
- Policy 8-26. The environmental impacts of using poisons to control ground squirrel populations in grasslands shall be thoroughly evaluated by the County.
- Policy 8-27. Seasonal wetlands in grassland areas of the County shall be identified and protected.
- Policy 8-28. All efforts shall be made to identify and protect the County's mature native oak and buckeye trees.
- Policy 8-78. Where feasible, existing natural waterways shall be protected and preserved in their natural state, and channels which already are modified shall be restored. A natural waterway is defined as a waterway which can support its own environment of vegetation, fowl, fish, and reptiles, and which appears natural.
- Policy 8-79. Creeks and streams determined to be important and irreplaceable natural resources shall be retained in their natural state whenever possible to maintain water quality, wildlife diversity, aesthetic values, and recreation opportunities.
- Policy 8-80. Whenever possible, remaining natural watercourses and their riparian zones shall be restored to improve their function as habitats.
- Policy 8-81. Fisheries in the streams within the County shall be preserved and re-established wherever possible.
- Policy 8-83. The remaining willow riparian areas in East County shall be protected from intensive cattle grazing.

- Policy 8-86. Existing native riparian habitat shall be preserved and enhanced by new development unless public safety concerns require removal of habitat for flood control or other public purposes.
- Policy 8-88. New development which modifies or destroys riparian habitat because of needed flood control, shall be responsible for restoring and enhancing an equivalent amount of habitat within or near the project area.
- Policy 8-89. Setback areas of at least 100 feet shall be provided along natural creeks and streams in areas planned for urbanization. The setback areas shall be of a width adequate to allow maintenance and to prevent damage to adjacent structures, the natural channel and associated riparian vegetation.
- Policy 8-90. Deeded development rights for lands within established setback areas along creeks or streams shall be sought to assure creek preservation and to protect adjacent structures and the loss of private property.
- Policy 8-91. Grading, filling and construction activity near watercourses shall be conducted in such a manner as to minimize impacts from increased runoff, erosion, sedimentation, biochemical degradation, or thermal pollution.
- Policy 8-92. Revegetation of a watercourse shall employ native vegetation, providing the type of vegetation is compatible the watercourse's maintenance program and does not adversely alter channel capacity.
- Policy 8-cr. Develop a program that fosters the participation of public agencies, private organizations and individuals in the development of watershed management practices that reduce soil loss and excessive runoff (i.e., control of grazing in upper watersheds, timing of release of water from upstream dams, revegetation of watersheds), and that minimize the effect on downstream areas.
- Policy 8-cs. Develop a program for the restoration of riparian vegetation in rural creeks where grazing activities are reducing the extent of the vegetation and are eroding channel banks.
- Policy 8-ct. Develop guidelines for creek maintenance practices which assure that native vegetation is not removed unnecessarily. These guidelines should also assure that maintenance is scheduled to minimize disruption of wildlife breeding practices.



## **IMPACTS AND MITIGATION MEASURES ASSOCIATED WITH THE SPECIFIC PLAN**

### **Methodology and Significance Criteria**

#### **Methodology**

The following impact assessment is based on available information, including conceptual land use designations, and should be considered a conservative estimate of the effects of proposed development on biological resources.

Impact acres were determined by comparing the DVSP land use map (Figure 3-4) and grading proposals with vegetation maps of the planning area (Figures 11-1 and 11-3).

#### **Significance Criteria**

Conclusions regarding the significance of impacts on vegetation resources are based on criteria contained in the State CEQA Guidelines.

- **Common Natural Communities:** If a substantial portion of the community type would be eliminated by the project, when compared to its extent in Contra Costa County, the impact is considered significant. The natural communities' ability to recover from impacts in a timely manner were also considered in this assessment.
- **Important Natural Communities:** Appendix G of the State CEQA Guidelines defines project effects that substantially diminish habitat for fish, wildlife, or plants or that disrupt or divide the physical arrangement of an established community as significant impacts. Impacts on important natural communities that diminish their ability to support dependent plant or wildlife species or perform ecological functions are considered significant. Impacts on important natural communities recognized in the Contra Costa General Plan's Conservation Element are also considered significant.
- **Developed Communities:** Adverse effects on developed communities are not considered significant unless the area provides important values to dependent wildlife species.
- **Wetlands:** Impacts on areas considered potential jurisdictional wetlands and other waters of the United States are considered significant because these areas perform important ecological functions and provide important habitat for dependent plant and wildlife species (State CEQA Guidelines). A detailed wetland delineation will need to be performed by a wetland specialist and verified by the Corps to conclusively determine the precise extent and location of jurisdictional areas onsite.

- **Special-Status Plant Species:** Impacts on special-status plant species are considered significant if elimination or degradation of the population would adversely affect the species (State CEQA guidelines) or if elimination or degradation of their habitat could threaten their existence.
- **Common Wildlife Species:** Adverse effects on common wildlife species are assessed by comparing the type and acreages of habitats eliminated with local and regional habitat abundance. Generally, elimination of small acreages of wildlife habitat is considered a less-than-significant impact, depending on site-specific circumstances and regional context.
- **Special-Status Wildlife Species:** In addition to the protection of special-status wildlife species under the State CEQA Guidelines, the federal Endangered Species Act Section 9 (16 USC 1361 et. seq.) prohibits the "taking" of any listed endangered or threatened species of fish or wildlife and plants. The term "take" is broadly defined to include harassment (i.e., action or lack of action that creates the likelihood of injury to wildlife by significantly disrupting normal behavior patterns), harm (i.e., acts that kill or injure wildlife, including significant habitat modification or degradation), pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or any attempt to engage in such conduct (16 USC 1532, 50 CFR 17.3).

Development of unoccupied potential habitat is not considered a take under the federal Endangered Species Act.

Unauthorized take of federally listed fish, wildlife, and plant species is prohibited under the act. A permit to take an endangered species, however, may be authorized by the U.S Fish and Wildlife Service in several ways: through formal consultation under Section 7 of the Endangered Species Act (federal agencies) or issuance of an incidental take permit under Section 10 (private organizations). Incidental take is defined as a take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity.

California Fish and Game Code 2080 prohibits the take of a California endangered or threatened species. California Fish and Game Code 2081, through permits, can allow take of an endangered species for scientific, educational, or management purposes.

### **Key Assumptions**

The following assumptions were used in determining impacts on biological resources:

- Biological resources in areas designated for development would be eliminated or seriously disturbed by the project.



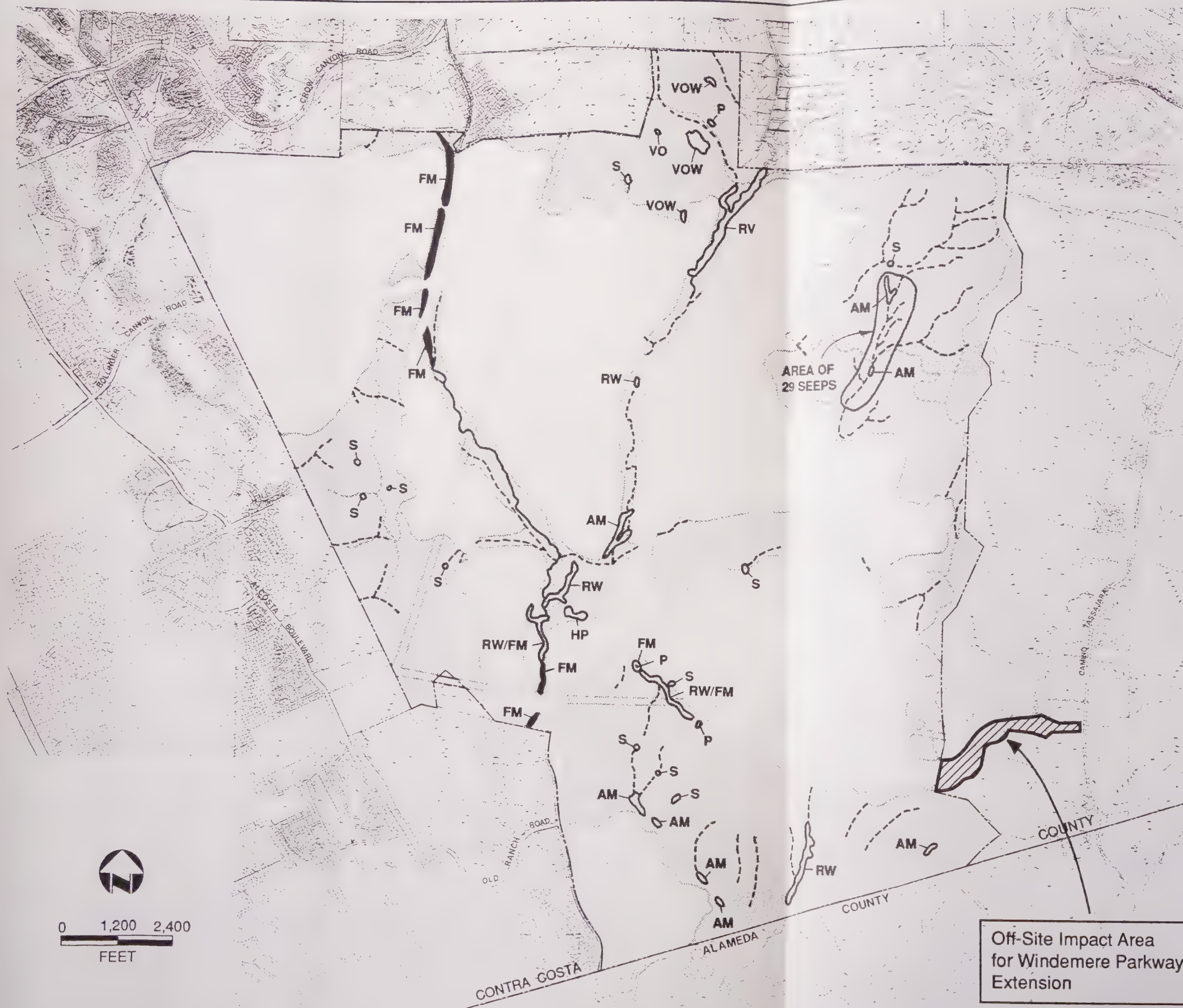


Figure 11-3.  
Important Botanical Resources  
Located In Areas Subject to  
Limited Grading in the  
Dougherty Valley Planning  
Area

#### LEGEND

##### Habitat Types

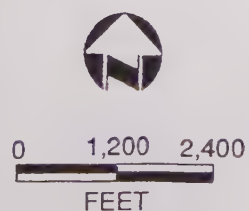
- AM Alkali Meadow
- RV Valley Oak Riparian Woodland
- RW Willow Riparian Forest
- FM Freshwater Marsh
- HP Horticultural Planting
- S Seep
- P Pond
- VOW Valley Oak Woodland
- VO Valley Oak Tree

- Seasonal Drainage
- Perennial Creek

- Developed Impact Area  
(Mass Grading)

- Areas in Which Grading Will Be  
Limited to Development of  
Special Facilities

Off-Site Impact Area  
for Windemere Parkway  
Extension







- Biological resources in areas designated as open space could be adversely affected, directly or indirectly, by project construction or subsequent use of the open space areas.
- Biological resources in areas designated as parks and recreation would not be adversely affected by the project except where project features such as trails, access roads, or recreation facilities are sited; placement of trails and roads identified in Figure 5-4 are presumed to avoid biological resources where feasible.
- Special-status wildlife species or their habitat in areas designated for development or recreational facilities would be eliminated by the project.
- Camp Parks would remain in military use.
- Primary creek corridors would average 300 feet wide, and smaller creek corridors would average 100 feet wide.
- Coyote Creek would be partially or totally lost (temporarily).
- Riparian and wetland habitat enhancement projects would cause a temporary loss of wetland habitat.
- Financing of restoration and mitigation would be provided by the project proponent and the financing plan would be submitted to the County Community Development Department before a final development plan is approved.

### **Relevant Dougherty Valley Specific Plan Policies**

The DVSP contains the following policies relating to biological resources:

- Policy OSC-2. Set aside at least 55% of both Shapell and Windemere properties as parks or open space lands.
- Policy OSC-3. Keep the perimeter ridges open and unobstructed, with minimum development for recreational use only.
- Policy OSC-4. Enhance the habitat value of the ridges and their potential to support a diversity of wildlife.
- Policy OSC-5. Provide staging areas for the ridgetop trail system at key locations for trail access, parking, maintenance and interpretive signage. Design these staging areas to serve jointly as a park and ride facilities.

- Policy OSC-6. Establish viewshed buffer zones of a minimum of one hundred feet between the major ridgetops and the development areas.
- Policy OSC-7. Reinforce the visual prominence and wildlife value of significant creek corridors and provide for multiple active and passive recreational uses.
- Policy OSC-8. Establish a primary creek corridor system to serve as a multi-purpose linear greenway and storm water management system.
- Policy OSC-9. Establish a hierarchy of creek improvements that reflect the role and importance of individual drainages and which add to the identity, amenity, and biological diversity of the valley.
- Policy OSC-10. Stabilize the creeks, utilizing a combination of vegetation and environmentally sensitive stabilization techniques.
- Policy OSC-11. Allow the linear creek corridor to be publicly visible and accessible from surrounding areas.
- Policy OSC-12. Protect any significant trees in areas planned as open space in Dougherty Valley or plant new trees on a 10 to 1 basis for any removed.
- Policy OSC-13. Provide for wetlands which will increase the acreage of wetlands within Dougherty Valley.

### **Project-Related Impacts**

#### **Impact: Loss, Degradation, or Fragmentation of 3,911 Acres of Annual Grasslands**

Implementing the project would result in the grading, filling, or other modifications of approximately 3,911 acres of annual grassland in areas proposed for development (Figure 11-3). An additional amount of annual grasslands located in open space and parks and recreational use areas would be eliminated by installing water tanks, maintenance and access roads, parking, restrooms, telephones, water troughs, hiking and biking trails, and trash receptacles. The project would enhance the wildlife habitat value of the open space areas (grasslands) by reducing the intensity of cattle grazing.

Eliminating annual grasslands is not expected to affect important botanical resources; these areas are not known to support special-status plant species or other important botanical resources. However, the loss of annual grassland would eliminate wildlife habitat, including foraging habitat for wintering and breeding raptors. It would also displace or eliminate wildlife using the area and fragment grassland habitat. Linear open space corridors are narrow on the north side of the planning area and fragmented by bridges and



trail routes, would provide little habitat value, and would not provide adequate wildlife movement corridors. Open space areas, such as the northeast and southeast areas, have no connecting corridors onsite or are narrow and depend on adjacent lands to the east to maintain an adequate wildlife corridor. The open space area south of the East Branch Road and east of Bollinger Canyon Road would be isolated from other open space areas; the open space area south of Bollinger Road and west of Dougherty Road would also be isolated from other open spaces areas. The central portion of Alamo Creek and west branch of Alamo Creek are fragmented by the bridges of Bollinger Canyon and Dougherty Valley Roads. The open space area south of Windemere Parkway would be cut off from open space areas to the north by the parkway and development; the open space area along the northwest corner of the planning area would be isolated by development. There is no mechanism to prevent adjacent lands to the east from being developed, thus, the wildlife corridors to the east could be eliminated. Use of the grassland and stream corridors as recreational open space would further reduce wildlife values. The project is inconsistent with general plan policies 8-7 and 8-15 concerning the preservation of wildlife habitat areas.

This impact is considered significant because the project would eliminate foraging habitat for winter and breeding raptors and other wildlife, fragment grassland habitats, and eliminate adequate wildlife movement corridors between open space areas.

### **Mitigation Measures**

- 11.1: The project proponents should manage existing grasslands in the proposed open space areas to reduce overall grazing intensity at the site by meeting or exceeding minimum management recommendations for leaving residual dry matter (RDM), as described for annual grasslands in the U.S Forest Service's Range Environmental Analysis Handbook. The grasslands appear to have been grazed at levels exceeding the recommended RDM standards. A qualified range ecologist and a wildlife biologist should prepare specific management recommendations for the open space areas. These recommendations should include permissible animal unit months and vegetative cover requirements to minimize erosion and groundwater impacts. These recommendations should be submitted to and approved by the County Community Development Department before approval of final subdivision maps adjacent to the areas to be grazed. A net reduction in grazing intensity is expected to have a beneficial impact on botanical and wildlife resources by increasing overall vegetative cover and improving plant species diversity, but this does not fully compensate for the loss of grassland habitat, nor does it compensate for fragmentation and isolation of remaining grassland habitat.
- 11.2: The project proponents should reduce habitat fragmentation, compensate for the loss of grassland habitat, and maintain a large, contiguous tract of foraging and breeding habitat by purchasing or acquiring a conservation easement, or otherwise protecting from development, the property or properties adjacent to and east of the planning area (west of the existing homes along Tassajara Road). This conservation area should be managed similarly to the

open space areas in the planning area, except that intensive public recreation should be prohibited from the conservation area. Conservation easements should be purchased prior to approval of final subdivision maps for the site. The project proponents should provide an endowment for long-term management of the conservation area. The conservation area will ensure that future habitat fragmentation will not occur along the eastern side of the planning area and that adequate wildlife corridors will remain along the east side of the planning area, thus maintaining a large contiguous area of foraging habitat for wildlife.

Implementing mitigation measures 11.1 and 11.2 would reduce this impact to a less-than-significant level because habitat value would be increased in the open space areas, habitat fragmentation would be reduced along the east side of the planning area, and adequate wildlife corridors would be maintained along the east side of the planning area to compensate for loss of annual grassland elsewhere in the planning area.

**Impact: Elimination or Degradation of Valley Oak Savanna, Valley Oak Riparian Woodland, and Individual Oak Trees**

The project proposed open space areas to protect valley oak savanna, valley oak riparian woodland, and individual oak trees (0.79 acre) (Figure 11-3). These habitats are located along a primary creek corridor system that would be largely incorporated into open space, parks, and recreational use areas. Major creek corridors would average 300 feet in width and smaller creeks would be 50 feet in width. Incorporation of valley oaks, valley oak savanna, and riparian woodland into open space is considered a beneficial effect of the project and is consistent with general plan policies 8-12, 8-28, and 8-86. Reduced cattle grazing would increase wildlife habitat value on these habitats.

However, impacts on valley oaks, valley oak savanna, and valley oak riparian woodlands, as well as other riparian woodlands incorporated into open space and parks and recreation areas could result from construction of recreational facilities (e.g., golf courses, equestrian centers, swimming facilities, conference centers, and neighborhood park facilities), construction of related support facilities (e.g., staging areas, stormwater drainage basins, corrals, and cattle chutes), and subsequent recreational use of open space and parks and recreation areas.

The location and extent of impacts on oak resources from construction of proposed recreational facilities will be insignificant because of the current scarcity of trees in the planning area; the proposed project is expected to have the beneficial effect of increasing the number of trees onsite.

Although impacts on resources could occur, it is assumed that the resources would be avoided to the full extent feasible during project design. This is consistent with general plan policies 8-79, 8-80, 8-86, 8-88, and 8-91.

Activities such as cattle grazing, hiking, bicycling, picnicking, and horseback riding could degrade riparian woodlands by fragmenting habitat, causing erosion or soil disturbance



in oak savannas, or introducing unnatural irrigation water into the woodlands during dry seasons.

The project would increase human disturbance along Alamo Creek. The proximity of the recreational developments (pedestrian, equestrian, and bicycle trails) along the riparian corridors of Alamo Creek and the west branch of Alamo Creek could damage the valley oak riparian habitat and disrupt wildlife breeding, feeding, or roosting activities. Light and glare impacts could also occur from exterior light fixtures along proposed pedestrian and recreational paths, thereby affecting existing wildlife use along the riparian corridor.

Although setbacks up to 300 feet are proposed, the project could contribute to the decline of valley oak riparian woodlands, mature valley oaks, and valley oak habitats from construction impacts and recreational use. They are of concern to local and state agencies, including Contra Costa County, because of continued statewide and local losses of the resources. In response to these concerns, the Contra Costa County General Plan has included policies to protect mature native oaks and riparian zones (policies 8-28, 8-78, 8-79, 8-80, 8-83, 8-86, and 8-88). The Dougherty Valley Specific Plan also recognizes the importance of creek corridors to wildlife (policy OSC-7), and the importance of "significant trees" (Policy OSC-12) and wetlands (Policy OSC-13). The resources also provide important ecological values, such as foraging and breeding habitat for wildlife species and bank stabilization for creek channels.

This impact is considered significant because oak savannas, oak trees, and riparian habitats have declined locally, regionally, and statewide, and the proposed project could contribute to this cumulative decline.

## **Mitigation Measures**

- 11.3: The project proponents should avoid adversely affecting oak trees and riparian vegetation in open space and parks and recreation use areas to the fullest extent possible during final project planning by rerouting proposed trails and pathways and relocating proposed facilities outside woodland areas. The following guidelines are designed to protect valley oaks during and after project construction:
  - a. Avoid placing recreational, utility, or support facilities in valley oak woodlands, riparian woodlands, or wetlands.
  - b. Fence valley oak and riparian habitats to be retained before construction activities begin. The distance from the trunk to the fence should be at least 1.5 times the maximum canopy dripline radius. Construction activities that would compact soil, mechanically damage trees, or alter the soil surface under valley oak trees should be avoided or minimized.



- c. Inform construction management and site staff of the importance of protecting natural resources during construction. A qualified biologist should perform this task.
  - d. Avoid construction activities near valley oak habitats during the breeding season (March 15-July 15) to minimize disturbance of breeding wildlife. Construction should be prohibited in the riparian vegetation area and within 150 feet of the outer edge of the vegetation.
  - e. Retain a qualified biologist to monitor construction activities throughout the duration of the project to ensure that no construction or staging activities damage sensitive areas.
  - f. Place signs along trails and other recreational use areas that explain the value of and threats to riparian and wetland habitats and oak woodlands and provide information on species inhabiting the riparian and oak woodland habitats. Place signs along trails entering the riparian corridor, wetlands, and other open space areas requiring pets to be leashed. In addition to serving as an educational tool, the signs would help discourage human and domestic pet intrusion into riparian habitats and possibly lessen further impacts on the riparian and oak woodland habitats.
  - g. Minimize the amount of light broadcast in the valley oak riparian area by restricting the height of light fixtures along pathways (2-3 feet) and shield and direct lighting downward toward the path.
  - h. Require that all pathways be located on one side of the stream and the other side should be preserved as open space.
  - i. If trails or paths cannot be routed outside woodlands, minimize or avoid activities that compact soil or change the natural water flow within the dripline of oak trees. Porous materials, such as pea gravel, should be used rather than cement or asphalt pavement for building trails. Irrigation or other unnatural water sources should be prevented from entering the woodlands, especially during dry summer months.
- 11.4: If elimination of valley oaks is unavoidable, the project proponents should replace lost trees by planting ten seedlings for each tree eliminated (Dougherty Valley Specific Plan Policy OSC-12). Seedlings should be planted prior to construction in open space areas or other places that will be protected from further impacts, including livestock grazing and subsequent recreational use of open space areas. Plantings should be placed as close as possible to the site of impact, and should be grown from acorns collected onsite or in the immediate vicinity of the planning area. Plantings should be monitored and maintained semiannually by a qualified biologist or restoration specialist for a minimum of 5 years to ensure that the trees have successfully established. Remedial measures such as replanting, installation of temporary enclosures, or irrigation should be employed

if the seedlings do not successfully establish during the monitoring period. Impacts on mature valley oaks, valley oak riparian woodlands, or valley oak woodlands would be considered successfully mitigated when plantings are successfully established and no longer require active management (e.g., watering).

The Contra Costa County Community Development Department will ensure that these mitigation measures are implemented.

Implementing mitigation measures 11.3 and 11.4 would reduce this impact to a less-than-significant level because oak woodlands, oak trees, and riparian habitats and their values would be protected or replaced by the project proponents.

### **Impact: Elimination or Degradation of 2.6 Acres of Willow Riparian Forest**

The project could eliminate or degrade willow riparian forest (2.6 acres) or the mature trees in the community (Figure 11-3). These resources are located along a primary creek corridor system that would be incorporated into open space. Enhancement of this area would be similar to the enhancement described for valley oak riparian woodlands and could result in similar beneficial and adverse impacts on the willow riparian forests. The section entitled "Impact: Elimination or Degradation of Valley Oak Woodland, Valley Oak Riparian Woodland, or Individual Oak Trees" above describes the possible impacts of this enhancement.

Wildlife values would be reduced by increased human disturbance along the pathways, but the disturbance would be limited to one side of the stream.

This impact is considered significant because riparian habitats have declined locally, regionally, and statewide, and the proposed project could contribute to their decline, as described above for valley oak riparian woodlands. Further, willow riparian forest provides important habitat for dependent wildlife, and provides bank stabilization for creeks.

### **Mitigation Measures**

- 11.3 and 11.4: These measures are described above, except that willow seedlings or saplings should be planted.

Implementing mitigation measures 11.3 and 11.4 would reduce this impact to a less-than-significant level because willow riparian forests and their values would be protected or replaced by the project proponents.

## **Impact: Elimination or Degradation of 0.4 Acre of Freshwater Marsh**

Implementing the project's primary creek corridor system could result in the filling of freshwater marsh and may eliminate or degrade additional amounts in areas adjacent to construction sites (Figure 11-3). Landscaping and recreational use of open space could also adversely affect freshwater marsh. Coyote Creek and its tributaries would be filled or partially filled, causing local loss of wetland habitats.

In general, freshwater marsh, as well as other wetland communities, would be degraded by increasing fragmentation caused by development. Reductions in species richness, population sizes, and population stability or reproductive success could occur because of the separation of individual wetland areas by development. Wetlands, including freshwater marshes, would be adversely affected by:

- increased fragmentation of wetland ecosystems into separate areas (which would restrict migration, dispersal, and breeding patterns and increase mortality in terrestrial and aquatic wildlife);
- increased mosquito abatement activities in wetlands (which would reduce invertebrate and amphibian populations and disturb breeding wildlife);
- increased populations of non-native species, such as mosquitofish and aggressive weeds (causing displacement or reduction of native wildlife and vegetation through competition or predation);
- increased populations of domestic animals and humans (causing intentional and unintentional harassment of wildlife, especially within the wetland mitigation and preservation areas); and
- illegal or inappropriate activities, such as dumping of trash or fluids in or near wetlands and ponds at the open space areas; improper use of bicycles or other vehicles around wetlands; and deliberate vandalism of wetlands or open space fences, gates, or signs.

Adversely affecting wetland habitats is inconsistent with General Plan policy 8-79, but restoration of wetland habitats is consistent with General Plan policies 8-17, 8-79, and 8-80.

These direct and indirect impacts are considered significant because wetland habitats have declined locally, regionally, and statewide, and the project would contribute to the cumulative loss of these habitats.

## **Mitigation Measures**

- 11.3a, c, d, e, f, and g; and 11.4: These measures are described above.



- 11.5: The mosquito abatement district should be included in wetland and riparian habitat restoration and enhancement planning. Recommendations from the abatement district will be used in wetland and riparian habitat design that will minimize the creation of mosquito breeding habitat and reduce the need for mosquito abatement activities.
- 11.6: The local mosquito abatement district should minimize the disturbance caused by mosquito abatement activities in wetlands during periods of active wildlife breeding activities (March 15-July 15). If mosquito abatement is required during the breeding season, the mosquito abatement district should conduct a wildlife survey to determine if sensitive wildlife species are present that could be disturbed (e.g., tricolored blackbirds and other colony-nesting species). If sensitive wildlife species are present and mosquito abatement is necessary, the mosquito abatement district should contact DFG to determine the appropriate procedures.
- 11.7: The project proponents should all fence freshwater marsh habitats and at mitigation areas to restrict human and domestic animal access. Fencing should consist of materials that allow movement of wildlife (i.e., 3-inch mesh fencing) and should be placed 150 feet from the outer edge of the wetland. Fencing should be completed before a grading permit is issued. The Community Development Department should ensure fencing is completed before grading begins.
- 11.8: The project proponents should prevent dredge or fill activities in jurisdictional wetland areas or compensate for the loss of unavoidable onsite freshwater marsh in consultation with DFG, USFWS, and the Corps as a condition of a Section 404 permit.

To determine the extent and location of areas under Section 404 jurisdiction, a qualified wetland specialist should complete a Corps-verified wetland delineation of the site. Areas determined to be jurisdictional wetlands or other waters of the United States should be protected from discharges of solid or liquid construction material by erecting barricades of hay bales, dikes, or silt fences upslope from the wetlands prior to construction. Proposed enhancement of riparian areas would provide some compensation for or elimination of impacts on wetlands; however, additional mitigation would likely be required to fully compensate for the loss of wetland habitat as a condition of a Section 404 permit. Compensation for the loss of freshwater habitat could require a minimum replacement up to 2 acres for each affected acre. Locations for the proposed mitigation areas are identified in Figure 16 of the DVSP. A qualified restoration ecologist should be retained by the project proponents to develop and implement a wetland restoration plan in consultation with the Corps as a condition of a Section 404 permit. The plan should specify the replacement acreages and values required to fully mitigate wetland impacts, including performance standards, length of monitoring, funding sources, timetable for implementation, locations and treatments prescribed for individual mitigation sites, and an assessment of expected results of treatments in meeting performance standards. The mitigation would be

considered successful when acres and values have been replaced, the mitigation plantings no longer require active management, and the mitigation sites are protected in perpetuity.

The following elements should be included in the restoration plan:

- the location, treatment, type, and form of planting stock appropriate for the region and wetland type mitigated;
- salvage plans for wetland vegetation that will be affected by development of a source of seed or other propagation stock;
- revegetation sites within protected nondevelopment buffer zones; and
- monitoring requirements (typically annual or semiannual monitoring for 3 to 5 years) to ensure that plants have successfully established; and
- remedial measures, such as replanting, enhancement, and control of exotic species that could be employed to ensure success of the mitigation effort.

The Community Development Department should ensure that the project proponents have complied with Section 404 of the Clean Water Act before issuing a grading permit. If the impact on alkali meadows cannot be avoided, the project proponents should fund preparation of a comprehensive wetland mitigation plan and begin implementation of the plan prior to construction.

Implementing mitigation measures 11.3a, c, d, e, f, and h; 11.4; and 11.5-11.8 would reduce these impacts to less-than-significant levels because impacts on wetland resources would be avoided, minimized, or compensated for by the project proponents.

#### **Impact: Elimination of Approximately 2 Acres of Alkali Meadow**

Construction of the trail system proposed through Hidden Valley would result in the loss of approximately 2 acres of alkali meadow (Figure 11-3). This would be inconsistent with general plan policies 8-8, 8-10, and 8-27. A wetland delineation would have to be conducted to determine the number of acres that would be affected.

This impact is considered significant because alkali meadows are significant natural communities and the project would contribute to their cumulative decline. Implement one of the following mitigation measures.

## Mitigation Measures

- 11.3a, c, d, e, f, and g; and 11.4: These measures are described above. Relocating the trail would avoid the impacts on alkali meadows and reduce this impact to less than significant.
- 11.8: This measure is described above. The following elements should also be included for the loss of alkali meadow:
  - A compensation ratio exceeding 1 acre created for each acre affected may be required to fully compensate for impacts on this habitat. In-kind alkali meadow creation (i.e., creation of a habitat that supports the same species, has a similar structure, and provides similar values) is considered highly experimental (Jones & Stokes Associates 1990) and has not been accepted as a viable form of mitigation by the Corps on other projects. Mitigation for alkali meadow is likely to require a combination of creation of out-of-kind, like-value wetlands (i.e., seasonal alkali wetland that supports similar species as the affected alkali meadow) and enhancement or restoration of existing, degraded alkali meadow onsite. Enhancement measures may include installation of livestock grazing exclosures, reseeding native halophytes, or hydrological restoration (i.e., backfilling or creeks to raise water tables that feed the alkali meadow).
  - A mitigation plan should be prepared by a qualified wetland restoration ecologist that specifies the number of acres created, enhanced, or restored that are required to offset alkali meadow losses. A mitigation plan will be submitted by the project proponents to the Community Development Department before a preliminary development plan is submitted. The Community Development Department will ensure that the mitigation is implemented and will monitor implementation.

Implementing mitigation measures 11.3a, c, d, e, f, and g; 11.4; and 11.8 would reduce this impact to a less-than-significant level because alkali meadow habitat would be protected or the loss would be compensated for by the project proponents.

### **Impact: Elimination or Degradation of 2.1 Acres of Seeps**

Implementing the proposed project would result in the elimination of approximately 2.1 acres of seep habitat and could eliminate additional acreage through incidental construction impacts, landscaping, and recreational use of open space (Figure 11-3). This habitat could qualify as jurisdictional wetland under Section 404 of the Clean Water Act.

This impact is considered significant because seeps provide important habitat for water-dependent plant and wildlife species and one of the few perennial water sources for wildlife species on the site. Seeps are likely to qualify as jurisdictional wetland.



## **Mitigation Measures**

- 11.3a, c, d, e, f, and g; 11.4; 11.5; 11.6; 11.7; and 11.8: These measures are described above.

Implementing these mitigation measures would reduce this impact to a less-than-significant level because seeps would be avoided or impacts on seeps would be minimized or compensated for by the project proponents.

## **Impact: Loss or Degradation of Stock Ponds**

Implementing the proposed project could result in the elimination of stock pond habitat or could reduce the habitat quality of stock ponds (Figure 11-3). Stock ponds could qualify as jurisdictional wetland under Section 404 of the Clean Water Act.

This impact is considered significant because stock ponds provide perennial water for wildlife, support habitat for waterfowl and other waterbirds, and the project could contribute to the loss or degradation of pond habitats. Stock ponds are likely to qualify as jurisdictional other waters of the United States.

## **Mitigation Measures**

- 11.3a, c, d, e, f, and g; 11.4; 11.5; 11.6; and 11.7: These measures are described above.
- 11.8: This measure is described above. The following elements should also be included for the loss of stock pond habitat:
  - A qualified restoration ecologist should develop a wetland mitigation plan in consultation with the Corps as a condition of a Section 404 permit that specifies the location, size, and habitat values of replacement stock ponds. A mitigation ratio of 1 acre of stock pond created for each acre affected is likely to be required to fully mitigate stock pond losses. Stock pond habitats would be considered successfully mitigated when the eliminated acreage has been replaced, similar ecological conditions such as emergent vegetation have successfully established in the replacement ponds, and replacement ponds no longer require active management.

The Community Development Department should ensure that the project proponents complied with Section 404 of the Clean Water Act before issuing a grading permit. The project proponents should fund preparation of a comprehensive wetland mitigation plan and begin implementation of the plan prior to construction. The Corps and the Community Development Department will be responsible for monitoring the success of the mitigation program.

Implementing these mitigation measures would reduce impacts on stock ponds to less-than-significant levels because elimination or degradation of stock ponds would be minimized.

### **Impact: Loss or Degradation of Perennial and Seasonal Creeks**

Portions of perennial and seasonal creeks that are incorporated into open space or parks and recreation areas could be eliminated or degraded by the project (Figure 11-3). Impacts would be similar to those described for valley oak woodland and valley oak riparian woodland. These areas are likely to be considered jurisdictional wetland or other waters of the United States under Section 404 of the Clean Water Act.

This impact is considered significant because perennial and seasonal creek habitats have been reduced in habitat quality locally and regionally, and the project could contribute to the loss of creek habitat or degradation of habitat value.

### **Mitigation Measures**

- 11.3 a, b, c, d, and e: These mitigation measures are described above.
- 11.8: This measure is described above. The following elements should also be included for the loss of perennial and seasonal creeks:
  - Determine appropriate compensation ratios and approaches in consultation with the Corps as a condition of a Section 404 permit.
  - Assess the effectiveness of proposed creek enhancement in replacing lost functions and values. If additional mitigation is required to fully compensate for loss of perennial and seasonal creeks, identify revegetation sites within protected nondevelopment buffer zones.
  - Monitor plantings semiannually for a minimum of 5 years to ensure that plants have successfully established. If establishment is unsuccessful, implement remedial measures, such as replanting, removal of escaped exotics, or enhancement of similar offsite occurrences.

The Community Development Department should ensure that the project proponents have complied with Section 404 of the Clean Water Act before issuing a grading permit.

Implementing mitigation measures 11.3a, b, c, d, and e, and measure 11.8 would reduce this impact to a less-than-significant level because the project proponents would protect creek habitats or compensate for their degradation or loss.

### **Impact: Potential Loss of San Joaquin Spearscale and Brittlescale Habitat**

The planning area has not been surveyed for two special-status species, the San Joaquin spearscale and brittlescale. These could occur in the alkali meadow habitat; however, their presence is unlikely because of the degraded state of this habitat in the planning area.

The DVSP designates the alkali meadow portions of the planning area as open space, thus the habitat could be enhanced by the cessation of grazing. This could constitute a possible benefit to the San Joaquin spearscale and brittlescale. However, if any improvements or construction activities are undertaken in the alkali meadow habitat, measures should be implemented to protect these two species.

### **Mitigation Measure**

- 11.9: Prior to construction of any trail or other improvements in the alkali meadow area, a survey should be undertaken to determine whether the San Joaquin spearscale and brittlescale are likely to be affected. If either species is found, they should be protected by redesign or abandonment of the proposed improvements (Sproal pers. comm.).

Implementing mitigation measure 11.9 would reduce this impact to a less-than-significant level because the project proponents would avoid the loss of San Joaquin spearscale and brittlescale.

### **Impact: Pollution of Coyote Creek by Fertilizers and Chemicals from the Golf Course**

Golf courses typically apply herbicides, pesticides, and fertilizers to maintain turfs. Pollutant runoff from the golf course flowing into Coyote Creek could lower water quality, adversely affecting aquatic invertebrates, amphibians, and other aquatic life. This impact is significant because water quality deterioration could cause a decline in water-dependent animals, including special-status wildlife species.

### **Mitigation Measure**

- 11.10: The project proponents should design the golf course and drainage systems by minimizing surface runoff into Coyote Creek. The project proponents will submit a golf course design plan with the preliminary development plan. The Community Development Department will ensure that the design of the golf course and drainage systems minimizes flow into the creek.

This partial mitigation measure (11.10) would reduce this impact, but not to a less-than significant level because project implementation would allow water quality to decline



and adversely affect aquatic life. Therefore, this impact is considered significant and unavoidable.

#### **Impact: Loss of Special-Status Aquatic Species and Their Habitats**

Suitable habitat for the hygroplitis diving beetle and San Francisco forktail would remain in the planning area. Filling and grading activities and the associated degraded water quality would cause direct mortality of red-legged frogs (petitioned for federal listing as threatened or endangered) and western pond turtles (petitioned for federal listing) along stream corridors, especially Alamo and West Alamo Creeks (Figure 11-2). The project would also eliminate suitable breeding habitat (annual grasslands within 0.25 mile of Alamo and West Alamo Creeks and stock ponds) for the pond turtle, thereby reducing breeding potential. The breeding and foraging habitat would be separated by housing development and roads. Eventually the pond turtle may be eliminated from the planning area.

This impact is considered significant because the red-legged frog and pond turtle are special-status species and would be eliminated from the planning area.

#### **Mitigation Measures**

- 11.1, 11.2, 11.3a-f, 11.5, 11.7, and 11.8. These mitigation measures are described above. If the California red-legged frog or western pond turtle are proposed for listing under the federal Endangered Species Act, or listed as threatened or endangered under the federal or state Endangered Species Acts, DFG and USFWS could require avoiding the impacts (redesign) or compensating for the impacts. Other compensation measures, such as relocation of the animals or offsite habitat restoration, is experimental. Enhancement of Hidden Valley wetlands could partially compensate for the loss of special-status aquatic species habitat (see mitigation measure 11.13). Consultation with DFG and USFWS would be required.

These partial mitigation measures would substantially reduce this impact, but not to a less-than-significant level because project implementation would cause mortality of individuals and loss of suitable habitat. Therefore, this impact is considered significant and unavoidable.

#### **Mitigation Measure**

- No mitigation is required.

## **Impact: Loss of Special-Status Raptors and Their Habitats**

Development in grasslands would result in the loss of potential breeding and suitable foraging habitat for burrowing owls (Figure 11-2) and the loss of suitable foraging habitat for the golden eagle, black-shouldered kite, prairie falcon, northern harrier, ferruginous hawk, and burrowing owl. Although 2,000 acres of open space would be retained within the planning area, the area would be fragmented and would probably not be used by hawks and eagles with large foraging ranges, such as the golden eagle, ferruginous hawk, and prairie falcon. Potential burrowing owl breeding sites along Coyote Creek, the west branch of Alamo Creek, and Alamo Creek would be eliminated by the project; potential breeding sites at Camp Parks and the Windemere property could be disturbed by recreational activity and domestic pets, although they could remain in the planning area. Burrowing owl mortality would increase because of vehicle collisions and predation by domestic dogs and cats. Most of the burrowing owl's suitable habitat (nearly level grassland) would be developed. Therefore, the owls would eventually be eliminated or displaced from the planning area.

This impact is considered significant because the burrowing owl is a state species of special concern and the proposed project could contribute to its decline.

### **Mitigation Measure**

- 11.11: The following measures should be implemented to determine if the owls nest in the planning area, and if so, to determine what measures need to be undertaken (if any) to protect the owls from construction activities and mitigate for the loss of breeding and foraging habitat. If the owls are found to nest in the planning area, nesting habitat may be created in the open space area or off the planning area to provide suitably protected burrows (possibly the land adjacent to and east of the planning area. The owls may move to this area on their own or they may be relocated if necessary.

Before any project-related construction begins, the project proponents should conduct pre-construction burrowing owl surveys in the specific areas to be developed from mid-June to early August to determine owl numbers, locations, and breeding activities. If the owls do not remain in the planning area during the breeding season, the following tasks need not be implemented. The project proponents will conduct these burrowing owl surveys (in all affected grassland and alkali habitats) before the Building Inspection Department issues a preliminary development plan approval.

If the owls remain at the project site, the project proponents will, in consultation with DFG, agree to a combination of mitigation techniques to minimize the impacts. They may include:

- artificial burrow creation,
- owl relocation, or
- habitat acquisition or enhancement.

If the owls are nesting in the planning area and DFG recommends additional measures, the project proponents will follow DFG guidelines.

If the owls are threatened by construction activities and other management options are not available, the owls may need to be captured and relocated to protected areas on the planning area, such as in an open space area (level or nearly level grasslands) or off the planning area. Relocation is considered experimental and is not always successful (Johnson pers. comm.). Nesting burrowing owls are site tenacious and often return to the original site after being relocated (Johnson pers. comm.). Relocation is also time consuming, expensive, and requires intensive manipulation of the owls. Therefore, relocation should be used only as a last resort. Relocating the owls would require a permit from and coordination with DFG.

Throughout construction and the life of the project, no ground squirrel control programs will be permitted in the open space areas and mitigation areas. Ground squirrel control programs could kill burrowing owls or reduce nest burrow availability.

The project proponents will complete the burrowing owl mitigation before the Building Inspection Department issues a preliminary grading permit.

This partial mitigation measure would not reduce this impact to a less-than-significant level because the breeding and foraging habitat would be lost and there is no assurance that mitigation measures would succeed. Therefore, this impact is considered significant and unavoidable.

### **Impact: Potential Direct and Indirect Adverse Effects on Nesting Raptors**

Noise from the construction of housing and roads, tree removal, and landscaping could disrupt nesting raptors (e.g., the great-horned owl and red-tailed hawk, which are protected by the DFG Code and the federal Migratory Bird Treaty Act [MBTA] but are not special-status species).

This impact is considered significant because disrupting nesting raptors would violate the DFG code and federal MBTA.

### **Mitigation Measure**

- 11.12: The project proponents should commission preconstruction field surveys for active raptor nests. If active nests are found, the project proponents should maintain a buffer zone (possibly 300 feet in radius) around raptor nests while they are occupied or postpone construction activities until after the raptor breeding season (July 15-January 15). The surveys should be conducted before the County issues preliminary grading permits for each phase of the project.



Although the site was surveyed for these species, additional surveys are needed because the locations of nests could change before construction begins.

Implementing mitigation measure 11.12 would reduce this impact to a less-than-significant level because it would avoid the disturbance of nesting raptors.

**Impact: Loss of Tricolored Blackbird Nesting and Foraging Habitat and Long-Term Disturbance to Tricolored Blackbird Nesting Habitat**

Proposed development in the grasslands would eliminate one tricolored blackbird nesting colony (state candidate for listing as endangered under the California Endangered Species Act) by eliminating foraging habitat adjacent to the colony. The construction of trails adjacent to the nesting colony would disturb nesting birds or prevent them from nesting (Figure 11-2).

The project would also eliminate suitable foraging habitat near existing nesting sites in the central and eastern portion of the planning area, which could cause the tricolored blackbirds to travel farther to obtain food for their nestlings, thus potentially causing the nesting colonies to fail. Long-term human disturbance along pathways would disturb and prevent tricolored blackbirds from nesting in the wetland habitats at three sites.

This impact is considered significant because the tricolored blackbird is a special-status species and the project would contribute to its decline.

**Mitigation Measure**

- 11.13: The project proponents should be required to develop and implement a detailed mitigation plan to compensate for the loss of the tricolored blackbird nesting and foraging habitat. The mitigation plan should include onsite enhancement of riparian and wetland habitats within Hidden Valley and possible offsite mitigation. The project proponents will consult with DFG and USFWS and prepare a mitigation plan for onsite or offsite mitigation. The mitigation plan will include the following elements and other measures specified by DFG and USFWS:
  - measures that the project proponents would implement to minimize and mitigate the impact,
  - funding committed to implement the mitigation measures,
  - the entity that would implement the mitigation measures (project proponents), and
  - the entity that would monitor the site after the mitigation plan is implemented.

The following tasks would be required to implement the mitigation plan:

- determine the acreage of wetlands and grasslands (foraging habitat) adversely affected;
- identify mitigation site (onsite or offsite); and
- obtain approval from DFG, USFWS, and the Community Development Department as specific development projects are considered.

The mitigation plan will be submitted to the Community Development Department before the project proponents submit final development plans for the site. The plan should enhance and create suitable breeding habitat (e.g., emergent wetland vegetation) adjacent to suitable foraging habitat.

Implementing mitigation measure 11.13 would reduce this impact to a less-than significant level because impacts on the tricolored blackbird would be minimized or compensated for by the project proponents.

#### **Impact: Potential Adverse Effects on San Joaquin Kit Fox Habitat**

USFWS considers all suitable habitat within 2 miles of a known kit fox den, pupping den, or areas where other evidence of occurrence exists to be occupied kit fox habitat (Simon pers. comm.). Under USFWS criteria, approximately 5 acres of the planning area is within 2 miles of a kit fox sighting (Figure 11-2) and this area is considered suitable and occupied kit fox habitat.

No potential or possible kit fox dens identified in the area were considered to be occupied, but this area was not as thoroughly surveyed as the rest of the planning area (WESCO 1991).

No developments or recreational facilities are planned in the area designated as occupied kit fox habitat.

The use of rodenticides (e.g., 1080 and diphacinone) for controlling ground squirrels in open space areas could cause kit fox mortality. Potential mortality from rodenticide poisoning is a significant impact and would be considered a take under the federal Endangered Species Act.

#### **Mitigation Measures**

- 11.14: The project proponents and the open space land managers will prohibit the use of rodenticides in open space areas.

- 11.15: The project proponents should avoid construction activities in the northern tip of the open space area identified as occupied kit fox habitat, as shown in Figure 11-2. The County Community Development Department will ensure that no development will occur in the kit fox habitat area.

Implementing mitigation measures 11.15 and 11.16 would reduce this impact to a less-than-significant level because the project proponents and open space managers would avoid adverse effects on the kit fox.

#### **Impact: Loss of 3,911 Acres of American Badger Breeding and Foraging Habitat**

Proposed development in the grasslands would eliminate 3,911 acres of suitable American badger breeding and foraging habitat and could isolate the badgers at Camp Parks if development occurs to the east and south of the planning area (Figure 11-2). The open space area in the western, northern, and central open space areas could be isolated and would not support badgers.

This impact is considered significant because the American badger is a species of special concern and the project would contribute to its decline.

#### **Mitigation Measures**

- 11.16: The project proponents should commission preconstruction surveys for badgers to determine the extent to which each construction phase could affect the species. If the badger is found, the project proponents should implement mitigation measures 11.1 and 11.2 (described above).

Implementing mitigation measures 11.1, 11.2, and 11.16 would reduce this impact to a less-than-significant level because breeding and foraging habitat would be preserved along the eastern portion of the planning area and adequate corridors would remain for the three open space areas along the eastern side of the planning area.

#### **Impact: Adverse Effects to Seeps, Riparian Habitat, Annual Grasslands, Western Pond Turtle, and California Red-Legged Frog from Construction of Windemere Parkway Extension to Camino Tassajara Road**

Constructing the proposed road extension from Windemere Parkway to Camino Tassajara Road would result in the removal of vegetation (riparian, wetland, and grassland habitats), possible degradation of stream water quality, and accidental spilling of dirt into the creek zone during construction (Sproal pers. comm.).

Two possible methods of crossing Tassajara Creek have been proposed by the project proponents: constructing a bridge over Tassajara Creek or placing oversized culverts with



near vertical side slopes. The bridge would result in no creek fill or minimal creek fill if a footing for the bridge was placed within the Corp's jurisdictional area.

The use of an oversized culvert would result in a greater area of creek fill, the amount depending on the roadway crossing design selected. A 100-foot-wide roadway with 3:1 slopes could result in filling over 300 feet of creek. This impact is considered significant because of the loss of creek habitat, western pond turtle habitat, red-legged frog habitat, and riparian vegetation. The use of the present alignment, whether for a bridge or culvert, would result in the removal of the mature valley oak existing along the alignment at the crossing site.

The grading and filling associated with construction of the proposed access road alignment would result in the loss of two seeps that encompass an area of approximately 13,995 square feet (0.32 acre). Impacts on vegetation and wildlife include the removal of five large mexican elderberry trees present at the head of seep No. 1; the elimination of a small population of California red-legged frogs, which is present in seep No. 1; and the loss of other associated vegetation and wildlife present in these seeps. The small seep (No. 3) at the northern boundary of the Parks Army Area near the southeastern boundary of the Windemere project site, which encompasses approximately 0.02 acre, is outside the area proposed for filling and would not be affected by road construction.

The road extension project would result in the grading of approximately 24 to 29 acres of introduced annual grassland. The majority of this area would be permanently removed and a portion would be reestablished on the cut and fill slopes associated with the road. The primary impacts on grassland wildlife would be habitat fragmentation and the increased likelihood of road kills. This road would be the only crossing thorough this area and wildlife crossing the road would become vulnerable to being hit and killed by road traffic (Sproal pers. comm.).

These impacts are considered significant because riparian and wetland habitats are significant natural communities and the project would contribute to their cumulative decline. The project would also contribute to the decline of two special-status wildlife species, including the western pond turtle and red-legged frog. Annual grasslands adjacent to wetlands and streams are used by pond turtles for breeding and the project would eliminate this potential breeding habitat.

## **Mitigation Measures**

- 11.17: If the bridge alternative is selected, the project proponents should construct the bridge structure with no disturbance of the creek area within the line of ordinary high water and associated riparian vegetation, unless a bridge footing is required within this zone.
- 11.18: If the bridge alternative is selected and the project proponents are required to construct the bridge footing within the ordinary high-water line, specific measures to maintain water quality and minimize disturbance of the

streambed and associated riparian vegetation will be implemented (Sproal pers. comm.).

- 11.19: The project proponents should prevent fill material and sediments from entering the stream by placing silt fences, straw bales, and other erosion control techniques around the streamside perimeter of the construction sites. The project proponent would clean up and remove all loose soil and construction material from these areas on completion of construction.
- 11.20: The project proponents should replace trees removed by construction as specified in measure 11.4. In addition, the project proponents should enhance Tassajara Creek for a distance of 100 feet upstream and downstream of the centerline of the bridge by planting additional riparian trees. The planting should include valley oak, arroyo willow, and red willow.
- 11.21: If the culvert alternative is selected, the project proponents should construct culverts at a minimum of 10 feet in height, with a natural bottom to allow unimpeded animal access through the culvert.
- 11.22: If the culvert alternative is selected, the project proponents should minimize creek fill by designing the crossing to use retaining walls.
- 11.23: The project proponents should replace the wetland area lost to road construction (seeps and any stream channel) by creating replacement wetland habitat of equal value (in quality and quantity) in Hidden Valley.
- 11.24: The project proponents should modify three seeps in Hidden Valley to flow into pools excavated at their bases and plant riparian vegetation, including elderberry, around their perimeters to provide red-legged frog habitat. The project proponents should also transplant red-legged frog tadpoles to these ponds for a period of 3 years and monitor these pools for 2 additional years to determine whether the transplants are successful in establishing a breeding population. If the transplant does not succeed, tadpoles should be transplanted for 2 additional years and monitoring should be continued.
- 11.25: The project proponents should revegetate all cut and fill slopes with a seed mix composed of annual grasses and native forbs, such as lupine and California poppy.
- 11.26: The project proponents should provide undercrossings at drainage culvert undercrossings to allow wildlife movement beneath, rather than across the road. Undercrossing design would be subject to DFG and USFWS approval.
- 11.27: The project proponent should install fencing along the roadway extension that would serve to direct wildlife through the road undercrossings. Fence design would be subject to DFG and USFWS approval.

Implementing mitigation measures 11.17-11.27 would reduce these impacts to less-than-significant levels because the project proponents would reduce impacts on wildlife habitats and special-status wildlife species and/or fully compensate for their loss on an equal value basis (quantity and quality).

### **Cumulative Impacts**

#### **Impact: Cumulative Loss and Fragmentation of Annual Grassland Habitat for Wildlife and Special-Status Wildlife Species**

Implementing the project would result in the cumulative loss of regional grassland habitat and fragment the remaining grassland, thus reducing its value to wildlife and special-status wildlife species, including the tricolored blackbird, burrowing owl, golden eagle, ferruginous hawk, prairie falcon, and American badger, and potentially the tiger salamander.

This impact is considered significant because the project would contribute to the cumulative loss of grassland habitat.

#### **Mitigation Measures**

- 11.1 and 11.2: These measures are described above.

These partial mitigation measures would reduce this impact, but not to a less-than-significant level because grassland habitat would be lost. Therefore, this impact is considered significant and unavoidable. However, implementation of these measures would substantially reduce the cumulative impact.

#### **Impact: Minor Potential for Cumulative Loss of San Joaquin Kit Fox Habitat**

Implementing the proposed project does not appear to conflict with the recovery goals of the San Joaquin kit fox recovery plan (U.S. Fish and Wildlife Service 1983). Contra Costa County is in Zone 3 of the kit fox range. Zone 3 contains low-density populations of the kit fox in a scattered distribution, and confirmed kit fox dens are erratic compared with similar habitats in the southern portion of the range (U.S. Fish and Wildlife Service 1983). No specific recovery efforts are planned for the planning area. Cumulative loss of the kit fox habitat is considered less than significant because the proposed project would not inhibit recovery of the San Joaquin kit fox.

#### **Mitigation Measure**

No mitigation is required because this impact is considered less than significant.





## **Chapter 12. Cultural Resources**

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### **SETTING**

#### **Regional Ethnographic Background**

The region in which the Dougherty Valley planning area is located lies within the former territory of the Seunen people, a tribelet of the Ohlone (or Costanoan, as they are sometimes called). The Ohlone occupied most of the southern San Francisco Bay Area, from the Carquinez Straits south to near the Sur River. The main community for the Seunen may have been near the City of San Ramon (Levy 1978, Banks and Morris 1981).

The Ohlone occupied one or more semi-permanent villages and several temporary camps used for seasonal resource collection. The main community often had the same name as the tribelet. Primary settlements were located on high ground at the mouth of rivers and along major watercourses. Dwellings were dome-shaped and constructed of thatch (Levy 1978).

Ohlone subsistence was based on hunting and gathering strategies. Acorns were a primary staple and were supplemented by other vegetal resources and hunting, fishing, and marine resource collection (Levy 1978).

The aboriginal life of the Ohlone changed dramatically when the Spanish entered the area in the late 1770s. The combination of foreign-born diseases and the missionization of Native Americans resulted in the near obliteration of most native Californians, including the Ohlone. By 1935, no native Ohlone speakers remained, and in 1973, only 230 people of Ohlone descent could be located in the area (Levy 1978).

#### **Regional Historical Background**

The inhabitants of the region were ushered into the historic period by the entry of the Spanish and the establishment of missions along the coast. In 1776, Mission Delores was established in what was to become San Francisco. Mission San Jose was established in 1797. Both missions flourished largely as a result of forced labor provided by the native population. In return for native labor, the Spanish provided religious training and meager rations. Although the system worked well from the Spanish point of view, the unhealthy and foreign conditions decimated the native population and more and more "neophytes" were required to maintain the work force.

The missions began to decline with their work force. Financial distress, coupled with Spain's and Mexico's increasingly unstable relationship, took its toll on the missions during the first 10 years of the 19th century. By 1821, Spain's colonial rule of Mexico had crumbled, the missions were secularized, and their large holdings were freed for private claim in 1833 (Bean and Rawls 1988).

Soon, large tracts of land formerly held by the missions were granted to private citizens by the Mexican government. Much of the planning area was part of Rancho San Ramon, granted to Jose Maria Amador in 1834. Amador was formerly the majordomo, or manager, of the Mission San Jose (Hoover, Rensch, and Rensch 1966; Gudde 1969). In 1852, a portion of Amador's former rancho was purchased by James Witt Dougherty, after whom Dougherty Valley was named.

The Banke Brothers cattle ranch was located in the Dougherty Road vicinity in the early 1920s (EIP Associates 1991). The Louis Banke house, located at the present ranch headquarters complex approximately 200 yards east of Dougherty Road, apparently dates from this period.

Since at least the mid-19th century, agriculture has been the primary economic endeavor in Dougherty Valley, with the cultivation of grain and cattle grazing predominating. In recent decades, residential and commercial development has supplanted agricultural activities in western Contra Costa County.

## **Planning Area Cultural Resource Studies**

### **Windemere Property Survey**

In mid-March 1981, a cultural resource investigation for a 10,600-acre area around Alamo Creek was conducted as part of private land planning efforts (Banks and Morris 1981). This survey included the eastern portion of the Dougherty Valley planning area, corresponding with the present boundaries of the Windemere property.

The survey resulted in the discovery of one isolated obsidian projectile point. This isolated projectile point was not considered an archeological site (Banks and Morris 1981). An abandoned and deteriorated residence and barn on the east side of Lawrence Road were investigated, but based on their condition, type of construction, and materials used, the site not appear to be a significant historic cultural resource (Banks and Morris 1981). The survey also resulted in the recordation of the residence on what was then known as the Gale Ranch at the ranch headquarters, approximately 200 yards east of Dougherty Road (CA-Cco-440H), also known as the Louis Banke house.

The Louis Banke house is located within a complex of farm buildings and structures that are of more recent construction than the house. The house may be about 80 years old. It is a two-story wood-frame building with ship-lap siding, approximately 24 by 24 feet, constructed with round, machine-made nails, with a single-story addition on the north side.



The addition, once containing a kitchen area, is approximately 15 by 20 feet. The house has a gable roof covered with corrugated metal. On the south side of the house may have been a porch, which is now removed. The house was a simple farmhouse with no unusual decorative elements. It is in a deteriorated condition (Banks and Morris 1981).

No site map is available for CA-Cco-440H, and the site record forms for the resource are not recorded to current standards for architectural properties. Although neither the report nor the site record mention that archeological remains (i.e., buried deposits) are associated with the buildings, such an occurrence is often the case.

### **Camp Parks Survey**

In October 1981, a survey of Camp Parks was conducted, including the 892 acres within the current planning area (Roop and Flynn 1981). This survey resulted in the recordation of 21 cultural resources within the current planning area boundaries. These resources represent a range of prehistoric and historic activities. Prehistoric resources include several isolated artifacts, food processing locales, a quarry for lithic materials, and a possible prehistoric trail. Historic materials dating from the early ranching period and artifacts dating to the military use of Camp Parks were also located. Prehistoric and historic artifacts were found together at several locations.

### **Shapell Property Survey**

An archeological survey was conducted of the Shapell property in 1987 (Holman and Associates 1987). This study identified one ranch/residential complex. At that time, the property consisted of a standing barn and the possible remains of a residence. This resource was noted in the report but not formally recorded and has been assigned only a temporary number (C-723) by the Northwest Information Center of the California Archaeological Inventory. Like the Louis Banke house, this resource has not been documented according to current standards for the recordation of architectural properties. Although no mention is made that archeological materials are associated with this resource, buried deposits are a possibility.

Additional research was conducted in 1989 by Holman and Associates as part of its involvement in the cultural resources investigation for the DVGMSPP EIR (EIP Associates 1991). For that document, Holman and Associates reported that it reexamined the Camp Parks portion of the planning area to corroborate the findings of Roop and Flynn's 1981 survey and to determine the extent of ground disturbance from subsequent military activities. This reevaluation of earlier work was prompted by the observation that other surveys in the vicinity of Camp Parks had not yielded similar types or concentrations of prehistoric artifacts.

The methods used by Holman and Associates to verify Roop and Flynn's survey findings are unclear. Statements are made in the EIR that the Camp Parks portion of the planning area was resurveyed, while elsewhere the report indicates that visits were made to

only four areas where cultural resources had been identified. Two of the areas revisited had been obliterated by recent bulldozing, and the other two sites could not be relocated in the field. Holman noted that the Camp Parks area had been subjected to a great deal of ground-disturbing activity.

### **Results of Previous Surveys**

With the exception of the isolated projectile point, no archeological resources have been identified in the northern portion of the planning area. However, the previous cultural resource studies indicate that a great deal of sedimentation (as much as 20 feet in places) has occurred in the planning area. This accumulation of sediment may conceal buried sites throughout the planning area, especially near watercourses. Banks and Morris (1981) examined a cut bank of Alamo Creek and observed two buried soil horizons similar to those where buried sites have been found near the planning area.

In addition to the Louis Banke house at ranch headquarters, the remains of two other deteriorated residential ranch complexes have been identified in the planning area. There could be previously undetected buried archeological deposits associated with these historic structures.

Regarding the Camp Parks portion of the planning area, disagreement exists concerning whether the large number of sites recorded by Roop and Flynn are the result of human or natural forces. Also, the possibility that sites may have been damaged or destroyed by subsequent military activities has not been resolved.

### **Contra Costa County General Plan Cultural Resource Policies**

The Contra Costa County General Plan has identified approximately 600 archeological sites within the County. Based on the location of these known sites, a countywide archeological sensitivity map has been prepared to help determine which areas should be surveyed for development applications. This map indicates that, in general, extensive lowland portions of the planning area are considered highly sensitive and upland areas are of medium to low sensitivity (Contra Costa County 1991).

Policies related to cultural resources include the preservation of important prehistoric and historic archeological sites; the protection of buildings or structures with historic value; preservation of the historic qualities of an area through historically compatible development plans; and a requirement that subdivisions and land use permits within the southeast portion of the County provide information regarding the nature and extent of archeological resources that exist in the planning area. These general plan policies are listed below:

- Policy 9-28: Areas which have identifiable and important archaeological or historic significance shall be preserved for such uses, preferably in public ownership.

- Policy 9-29: Buildings or structures that have visual merit and historic value shall be protected.
- Policy 9-30: Development surrounding areas of historic significance shall have compatible and high quality design in order to protect and enhance the historic quality of the area.
- Policy 9-31: Within the Southeast County area, applicants for subdivision or for land use permits to allow nonresidential uses shall provide information to the county on the nature and extent of the archeological resources that exist in the area. The County Planning Agency shall be responsible for determining the balance between the multiple use of the land with the protection of resources.

## **IMPACTS AND MITIGATION MEASURES ASSOCIATED WITH THE SPECIFIC PLAN**

### **Methodology and Significance Criteria**

#### **Methodology**

For this cultural resources assessment, a record search was conducted at the Northwest Information Center of the California Archaeological Inventory, Sonoma State University, Rohnert Park. In addition to archeological base maps and site records, the following documentary sources were consulted:

- the National Register of Historic Places (NRHP),
- the California Inventory of Historic Resources,
- California Points of Historic Interest, and
- California Historic Landmarks.

Historical sources such as California Place Names (Gudde 1969) and Historic Spots in California (Hoover, Rensch, and Rensch 1966) were also consulted. Historical and ethnographic sources were reviewed for information pertaining to the planning area. The DVGMSPP EIR was also consulted (EIP Associates 1991).

#### **Significance Criteria**

Under the State CEQA Guidelines, the County may find that the project's effect on a cultural resource is a significant environmental impact if the project may cause damage



to an important cultural resource. For the purposes of CEQA, a cultural resource is considered important if it:

- is associated with an event or person of recognized significance in California or American history, or of recognized scientific importance in prehistory;
- provides information that is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable or archeological research questions;
- has a special or particular quality, such as oldest, best example, largest, or last surviving example;
- is at least 100 years old and possesses substantial stratigraphic integrity; or
- is able to address important research questions that historical research has shown can be answered only through archeological methods (State CEQA Guidelines, Appendix K).

### **Key Assumptions**

The following assumptions were used in determining cultural resource impacts:

- The DVSP does not indicate how the two identified historic resource sites (CA-Cco-440H and C-723) will be addressed. It is assumed that both sites will be planned for inclusion in open space and avoided.
- The importance of two identified historic sites (CA-Cco-440H and C-723) has not been fully evaluated by previous studies; based on previous studies, site CA-Cco-440 is presumed to be important.
- An abandoned and deteriorated residence and barn on the east side of Lawrence Road has been adequately addressed in a previous study, which provides insignificant evidence based on the structure's type of construction, materials used, and deteriorated condition (Banks and Morris 1981).
- The large number of sites recorded in the Camp Parks portion of the planning area may be the result of human or natural forces, and some or all of these sites may have been damaged or destroyed by subsequent military activities.
- Any of the cultural resource sites located in areas planned for park or open space uses could be presumed to be important and will be avoided.

## **Project-Related Impacts**

### **Impact: Damage to or Destruction of the Historic Louis Banke House (CA-Cco-440H)**

A previous survey report notes that many early residences of the San Ramon Valley have been destroyed and, although in a deteriorated condition, "the Louis Banke house should be regarded as a significant historic cultural resource" (Banks and Morris 1981). Although additional studies by an architectural historian have not been conducted to verify the historic importance of the building, based on the previous studies, the building will be presumed to have historic importance for the purposes of CEQA. Additionally, damage to or loss of the Louis Banke House would contribute to the loss of historic farm structures in the San Ramon Valley and throughout Contra Costa County.

The DVSP indicates that the Louis Banke House would be in an area designated for a park. Therefore, the opportunity to avoid any damage or destruction of the property exists. Avoidance is the preferred method of mitigation in Appendix G of the State CEQA Guidelines.

This impact is considered significant because damage to or destruction of the historic Louis Banke House would contribute to the loss of historic farm structures in the San Ramon Valley and throughout Contra Costa County.

### **Mitigation Measure**

- 12.1: To avoid damage to or destruction of the Louis Banke house, the specific plan should identify it for preservation and restoration as an integral component of the park in which it is located. Prior to actual restoration of the building, the property should be further evaluated by an architectural historian to document its specific historic values and context, develop concepts for its preservation, and prepare site record forms that meet current professional standards for architectural properties. Alternatively, the farmhouse could be moved to a location onsite where it can be preserved.

Given the increased rarity of historic farm buildings in Contra Costa County, the restoration of the house offers a unique opportunity for thousands of future urban residents to learn about the history of their community. This mitigation measure should be implemented prior to County approval of final development plans for the affected site.

Implementing mitigation measure 12.1 would reduce this impact to a less-than-significant level because it would avoid any damage to or destruction of the Louis Banke house.

**Impact: Damage to or Destruction of Historic/Archeological Site (CA-723))**

Although identified to be of possible historic significance in a previous study (Holman and Associates 1987), this site was not determined to be an important historic resource. Although further study would be necessary by an architectural historian to determine its historic importance, such study is unnecessary because the project is also in an area designated for the park under the DVSP. Therefore, the destruction of or damage to the site can be avoided by specifically designating the site as a part of the park in the DVSP.

This impact is considered significant because it would result in damage to or destruction of historic/archeological site CA-723.

**Mitigation Measure**

- 12.2: To avoid damage to or destruction of the historic site, the specific plan should identify site CA-723 as an integral component of the park in which it is located. The specific decision whether to preserve this building or allow it to be recorded and torn down can be deferred to the future planning by the homeowners association that will operate the project's parks. As part of that subsequent planning process, the property should be further evaluated by an architectural historian to document its specific historic values and context, develop concepts for its preservation, and prepare site record forms that meet current professional standards for architectural properties.

Given the increased rarity of historic farm buildings in Contra Costa County, the preservation of site CA-723 offers a unique opportunity for thousands of future urban residents to learn about the history of their community. This mitigation measure should be implemented prior to County approval of final development plans for the affected site.

Implementing mitigation measure 12.2 would reduce this impact to a less-than-significant level because it would avoid any damage to or destruction of site CA-723.

**Impact: Damage to or Destruction of Several Important Prehistoric and Historic Archeological Sites Located on Camp Parks**

Ground-disturbing activities in the Camp Parks portion of the planning area could cause damage to or destroy up to 21 identified archeological and historic resource sites. Ten of the 21 sites identified by Roop and Flynn (1981) in the Camp Parks portion of planning area are located partially or entirely within lands designated by the DVSP for possible future development as a roadway or for public/semi public use (possibly a community college). Two sites are located partially within an area that could be transferred to Windemere and is planned for a roadway or for single-family medium-density residential development. The remaining nine sites are within areas planned for open space.



Although the prehistoric and historic archeological sites were identified by Banks and Morris in the 1981 study, their importance was not determined at that time. Therefore, in the absence of additional detailed studies, the resources will be presumed to be important and avoidance will be recommended.

This impact is considered significant because it would damage or destroy up to 21 identified prehistoric and historic archeological sites located on Camp Parks.

### **Mitigation Measures**

- 12.3: With regard to impacts resulting from the alignment of Windemere Parkway, a minor change in the road alignment may avoid the identified prehistoric and historic sites. If these sites cannot be avoided by realigning the road, then further, more detailed archeological studies must be completed to evaluate the resource, and supplemental environmental review may be necessary if they are determined to be important.
- 12.4: With regard to impacts from construction of a future public/semi-public use (e.g., a community college), because no specific use is currently proposed for this area, and because any future use would be subject to CEQA review prior to implementation by a public agency, it is impossible to recommend specific mitigation at this time other than complete avoidance. This appears to be a situation in which CEQA will allow deferral of mitigation to future studies, at such time when more is known about the proposed use and specific mitigation measures can be recommended. Thus, the area should be designated as a "future study" area in the specific plan and no development allowed on it until a particular public/semi-public use is proposed and evaluated under CEQA.

Implementing mitigation measures 12.3 and 12.4 would reduce this impact to a less-than-significant level because it would avoid any damage to or destruction of prehistoric and historic archeological sites located on Camp Parks.

### **Impact: Damage to or Destruction of Potential Buried Archeological Resources**

A large part of the planning area, especially the lowlands areas around watercourses, has been identified as having high to moderate archeological sensitivity and could contain buried archeological resources, which could be damaged or destroyed by project implementation.

Other archeological studies in the San Ramon Valley region have been covered by 3-20 feet of alluvial material from accelerated soil erosion in the area. These sites are not always found adjacent to stream courses and could be present at locales throughout the planning area (Banks and Morris 1981). In addition, "there are numerous examples of buried archeological sites along water courses to the south of the [planning area], most of which have contained human burials" (Holman and Associates 1987).

If any cultural resource finds are determined by the County to be important under the State CEQA Guidelines and County policy, this impact would be considered significant because it would result in damage to or destruction of buried archeological resources.

### **Mitigation Measures**

- 12.5: To avoid damage or destruction to any potential buried cultural resources, the project proponents and the County should monitor grading activities and should immediately stop all work and inform the County Community Development Department if buried cultural resources are discovered. In the event of such a find, the project proponents should retain a qualified archeologist who should investigate the site, evaluate its importance under the State CEQA Guidelines and County policy and provide a recommendation to the Community Development Department. The County should determine the importance of the cultural resource before authorizing continued grading in the vicinity of the find.

**and, if necessary**

- 12.6: If the find is determined to be important by the County, the project proponents should develop a detailed mitigation plan that includes procedures for resource recovery, avoidance and preservation, or restoration, based on recommendations by a qualified archeologist.

The County Community Development Department should review the detailed studies and recommendations and monitor their implementation prior to resumption of grading.

Implementing mitigation measure 12.5, and, if necessary, 12.6, would reduce this impact to a less-than-significant level because the importance of any prehistoric and historic resources discovered would be established and their appropriate management would be accomplished. If the find is determined not to be an important cultural resource by the County, only mitigation measure 12.5 would be required.

## **Chapter 13. Electromagnetic Fields**

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This section addresses potential public health and safety effects associated with development near electric transmission lines crossing the planning area. This issue is considered controversial and is a subject of scientific disagreement among experts. Electromagnetic fields (EMFs), potential health considerations, and applicable plans and policies will be discussed.

### **SETTING**

#### **Location of Planning Area Electric Transmission Lines**

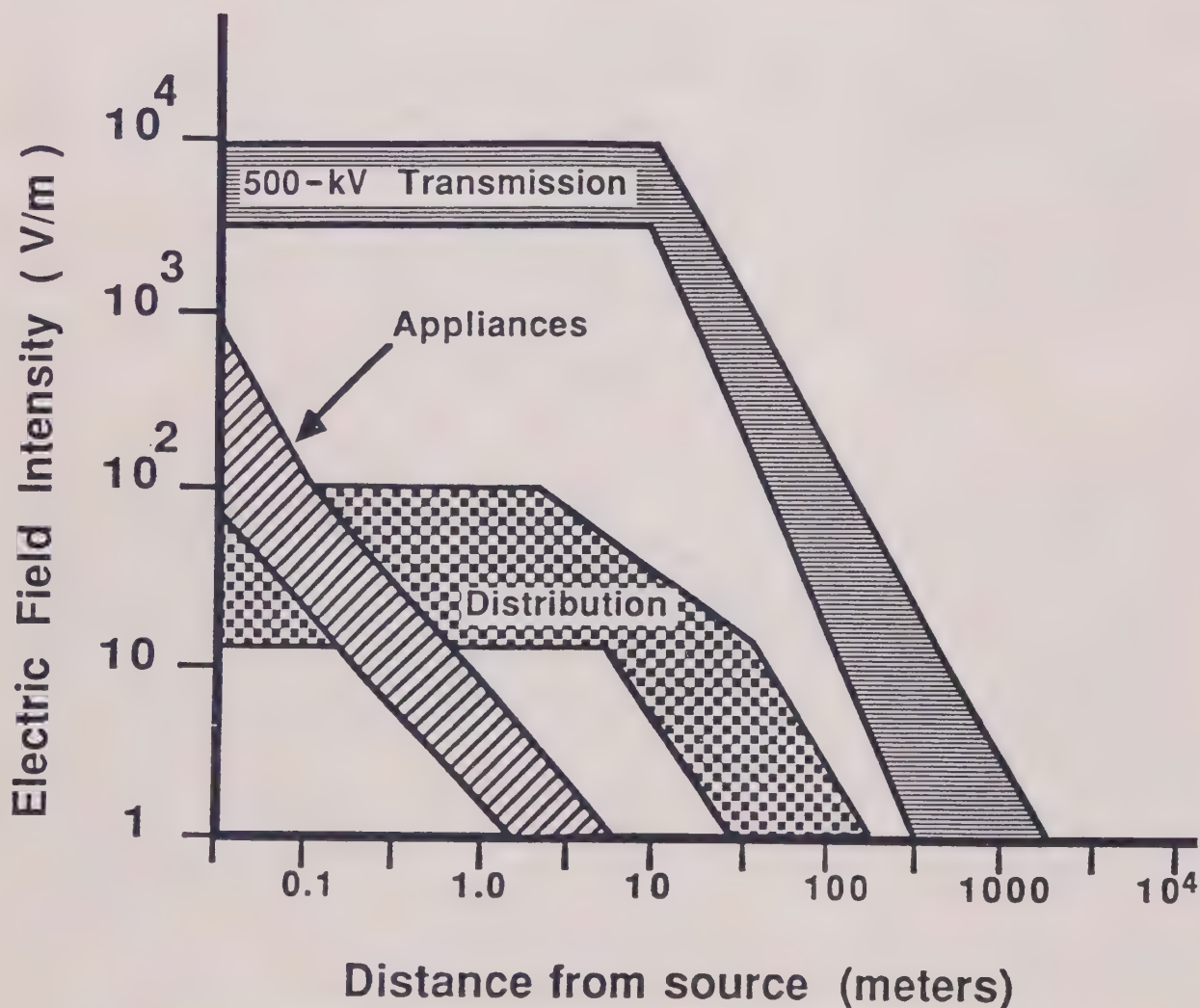
PG&E owns and operates the electric transmission and distribution lines onsite. Two two-tower 230-kV transmission lines are located in a 275-foot-wide easement running north-to-south across Dougherty Valley. One 21-kV distribution line follows the 230-kV transmission lines, a second follows Dougherty Road, and a third follows an existing 275-foot-wide transmission line easement that runs east-to-west across the southern half of Dougherty Valley. Figure 3-3 illustrates the locations of these easements. According to the DVSP, PG&E does not plan to construct any other major transmission lines within its easement through Dougherty Valley; however, PG&E wishes to preserve its easement for construction of new facilities if needed in the future.

### **Background**

#### **Electromagnetic Fields**

Electric transmission lines and other electrical devices create both electric fields and magnetic fields while carrying current. Electric and magnetic fields always exist together and are often referred to as EMFs. Electric fields are related to the strength of electric charge, and magnetic fields are related to the motion of the charge. EMFs may be steady (e.g., the earth's magnetic field) or may vary in strength and direction (e.g., EMFs created by electric power transmission). EMFs decrease in intensity exponentially with distance from the object carrying current. Figure 13-1 shows this relationship between the electric field intensity and distance from three illustrative sources. Figure 13-2 shows this relationship between magnetic fields and distance from the same three sources. Both figures show the electric and magnetic field strengths for a typical 500-kV transmission line and distribution lines of an unknown size. The intensity of EMFs associated with transmission



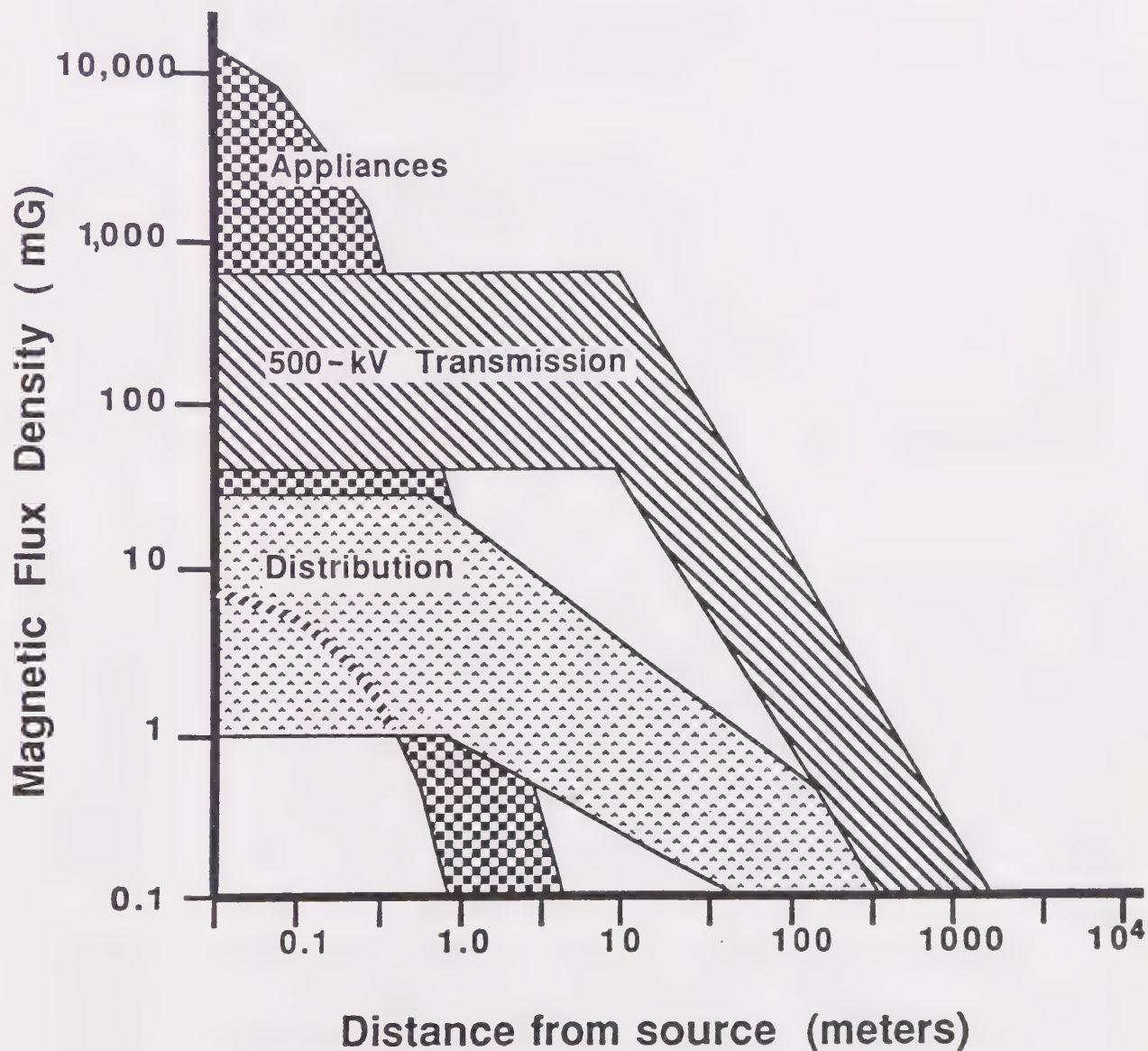


Notes: Illustration shows how the electric field intensity at ground level changes with horizontal distance from three common sources of power-frequency electric fields. The bands represent variation across individual sources in each group.

This graphic shows the electric field intensity for 500-kV transmission lines. This graphic should be treated as a worst-case scenario for 230-kV transmission lines.

Figure 13-1. Comparison of Intensity of Electric Fields Generated by Three Sources

Source: U.S. Congress 1989



Notes: Illustration shows how the magnetic field intensity at ground level changes with horizontal distance from three common sources of power-frequency magnetic fields. The bands represent variation across individual sources in each group.

Figure 13-2. Comparison of Intensity of Magnetic Fields Generated by Three Sources

Source: U.S. Congress 1989

lines depends on the line voltage, heights of conductors above the ground, electrical phasing configuration, and distance from the line. Figure 13-3 illustrates the relationship between magnetic fields and distance for a 230-kV transmission line (such as the line that actually crosses the planning area).

Electromagnetic waves occur along a spectrum of frequencies and wavelengths. Nonionizing waves emitted by radio, television, and power lines are at the low-frequency end of the spectrum. High-frequency ionizing electromagnetic waves of gamma rays, x-rays, and ultraviolet waves lie at the upper bounds of the spectrum, and visible light lies somewhere in the middle of the spectrum. Although electric radiation can be blocked by insulation materials, magnetic radiation easily penetrates most surrounding materials. For example, houses can attenuate electric fields from nearby power lines by roughly 90%. Shielding by other objects can be equally effective. Magnetic fields are shielded only by structures containing large amounts of ferrous (i.e., iron) or other metals. Houses, trees, and underground burials, therefore, do not provide appreciable shielding of magnetic fields. (U.S. Congress 1989.)

### **Potential Health Effects**

EMFs are being studied because of concerns that have arisen about their potential connection with adverse human health effects, including the promotion of cancer (e.g., advancing the growth of existing cancer), developmental abnormalities (e.g., birth defects), and various nervous system effects (e.g., depression) (Morgan 1989). Several scientific studies have been conducted to determine the potential health effects of long-term exposure to electromagnetic radiation. Overall, it is undisputed that electric and magnetic fields produce biological effects. However, there is presently no consensus within the scientific community on whether these effects are harmful to human health or whether EMFs have any demonstratable relationship with adverse health effects.

Three types of studies have been performed to determine whether EMFs pose any health risks: studies on cells, studies on animals, and epidemiological studies. Studies on cells affected by EMFs show effects on the transport of ions and proteins across cell membranes; DNA synthesis and RNA transcription; interactions with cellular response to hormones, enzymes, and neurotransmitters; interactions with immune responses of normal cells; and interactions with cancerous cells. These laboratory effects, however, are not necessarily applicable to more complex biological processes and human health effects.

Studies on animals have generally produced less consistent findings than studies on cells and therefore lend less support to the hypothesis that exposure to EMFs may be responsible for adverse health effects.

Epidemiological studies have examined statistical relationships between particular disease agents (in this case, power-frequency magnetic fields) and higher rates of disease in human populations. Two studies in Denver, Colorado, found that children exposed to above-average magnetic fields experienced an increase in the incidence of childhood leukemia (Morgan 1989). Several studies of children in other locations have found either



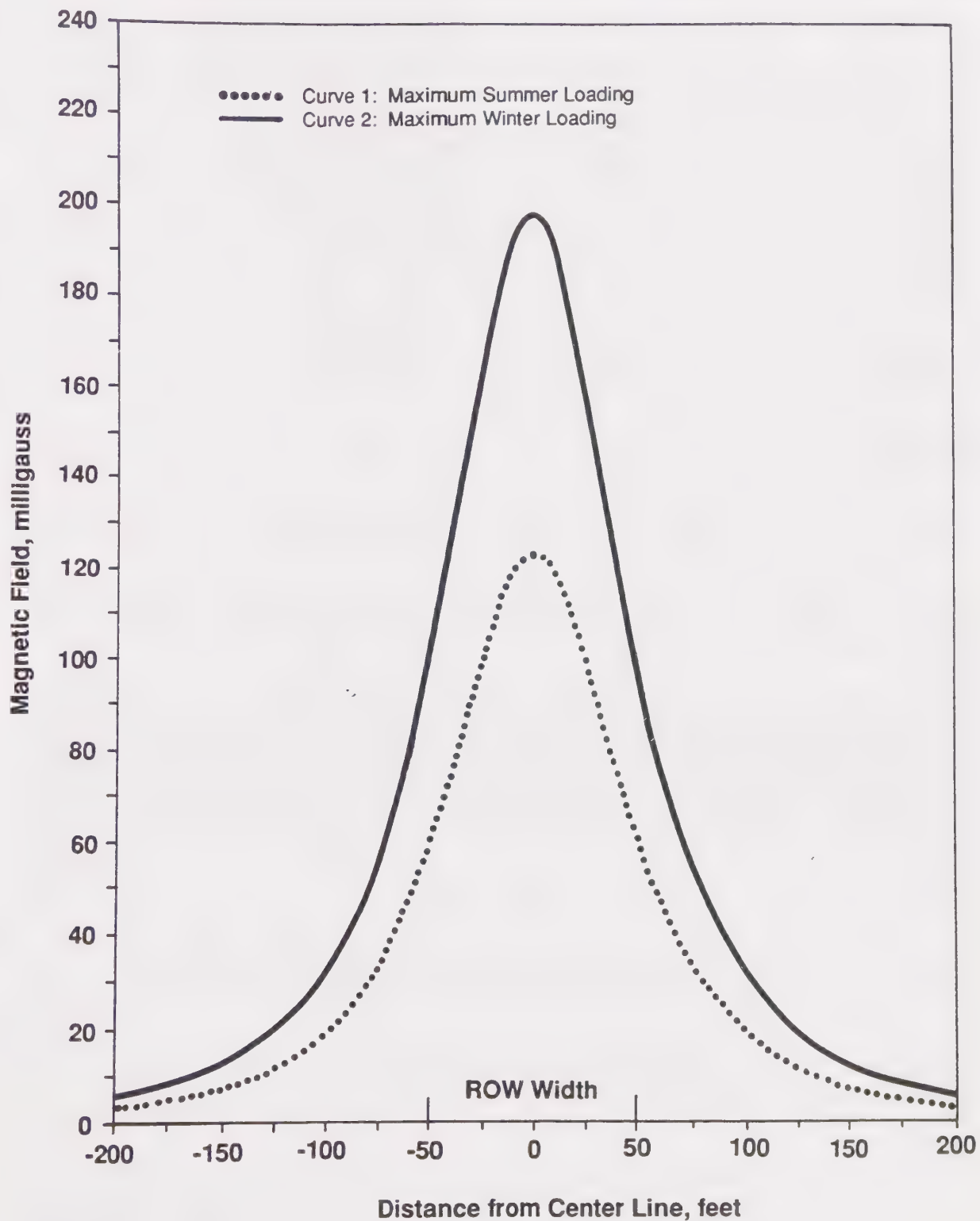


Figure 13-3. Relationship between Magnetic Field Strength and Distance from 230-kV Transmission Lines

Source: Radigonda pers. comm.

no apparent increased risk with higher exposure or a very slight increase that was not considered statistically significant. Additional epidemiological studies are currently under way.

Scientific uncertainty associated with the results of these studies includes the general absence of a quantitative relationship between the intensity of the "dose" and the level of response observed. In addition, biological effects are found only in a narrow range (or "window") of intensities, frequencies, and duration of electric or magnetic field exposure employed in study conditions.

Although the DVSP states that "indications suggest the 3 milligauss or less range is acceptable" for magnetic field exposure, it is impossible with the scientific evidence available to establish a "safe field" standard (Morgan 1989).

### **Applicable Plans and Policies**

There are currently no local, State, or Federal plans or policies and no industry standards concerning electromagnetic field exposure that are relevant to the proposed project.

DHS recommends adopting a "prudent avoidance" strategy, limiting personal exposures to EMFs when it can be done at a reasonable cost and with reasonable effort (Leonard et al. 1990).

A California Electromagnetic Fields Consensus Group, consisting of representatives of State government health and energy regulatory agencies, public interest groups, private consultants, and utility companies, has developed recommendations for interim policies concerning electric utility responses to EMFs but has not reached consensus on the field strength issue. Any recommendations are expected to be considered for adoption by the California Public Utilities Commission while the scientific inquiry continues (London pers. comm.).

## **IMPACTS AND MITIGATION MEASURES ASSOCIATED WITH THE SPECIFIC PLAN**

### **Methodology and Significance Criteria**

#### **Methodology**

Because of the lack of conclusive evidence connecting EMF exposure to adverse health effects, the environmental significance of locating residential structures near electric transmission and distribution lines is impossible to determine with any certainty. The purpose of this analysis, therefore, is limited to full disclosure of this issue by alerting decision makers and the public of the potential links between EMFs and adverse health effects.

## Significance Criteria

The issue of EMFs is controversial and the subject of scientific disagreement among experts. Although the County should treat this issue as significant based on Section 15064(h)(2) of State CEQA Guidelines not enough is known about the human health effects of EMFs to draw a conclusion concerning exposure and its health significance, although ongoing scientific research may provide evidence that could be used to formulate public policy in the future. The public health effects associated with exposure to EMFs are considered too speculative to be addressed within the meaning of Section 15145 of the State CEQA Guidelines.

The California Department of Education has established standards for locating school sites near high-voltage transmission lines easements. These standards are not health-based, but are based on an electric field strength graph developed by the Electric Power Research Institute (EPRI). According to these standards, a school cannot be located in the following areas:

- 100 feet from edge of easement for 100- to 110-kV line;
- 150 feet from edge of easement for 220- to 230-kV line; and
- 350 feet from edge of easement for 500- to 550-kV line (Lurton pers. comm.).

In the following analysis, the "prudent avoidance" concept is applied to conclude that minimizing residential and school site exposure to EMFs is beneficial, whereas creating undisclosed opportunities for EMF exposure at levels above those generally associated with electric distribution lines throughout residential neighborhoods in Contra Costa County is considered adverse.

## Key Assumptions

The following assumptions were used in determining project-related health and safety impacts:

- As stated in the DVSP, all existing and future electric distribution lines in the planning area will be installed underground, but the 230-KV transmission lines will remain above ground.
- Magnetic fields are of particular concern because their effects cannot be easily shielded by insulation or underground burial.
- This issue is of sufficient public concern to warrant full disclosure of the controversy as it relates to the planning area and to provide the public with the opportunity to practice "prudent avoidance" until more is known about the issue. Only the public disclosure aspects of this issue and compliance with the established



California Department of Education EMF school siting guidelines are considered potentially significant for this project.

### **Project-Related Impacts**

#### **Impact: Exposure of New Residents to Electromagnetic Fields**

Residential land uses are proposed adjacent to rights-of-way that contain PG&E transmission lines. Residents in dwellings closest to the transmission line right-of-way would unknowingly be exposed to the highest EMF intensities, which decrease exponentially with distance from the lines. Although no established health-based thresholds exist for EMF exposure, new residents of dwellings in the vicinity of the 230-kV transmission line should be notified of the issue and given the opportunity to practice "prudent avoidance" where maximum EMF levels exceed those generally associated with electric distribution lines in residential neighborhoods in Contra Costa County.

Figure 13-1 indicates that the magnetic flux density for a 230-kV transmission line is approximately the same as the intensities of standard electric distribution lines at approximately 200 feet (100 meters) from the source. Although the DVSP states that all distribution lines would be underground, the 230-kV transmission lines will be maintained above ground. As noted in the "Setting" section of this chapter, burial is not generally considered an effective means of reducing magnetic field intensity.

Within the planning area, the towers for the 230-kV transmission lines are in various locations within the 275-foot-wide PG&E right-of-way. Residential land uses are planned to be located adjacent to this transmission line right-of-way (Figure 3-4). Residences to be located within 200 feet of the actual location of the two 230-kV transmission lines may be expected to be exposed to higher EMF intensities in the "worst case" scenario than the maximum EMF levels associated with electric distribution lines. Most residents would not be expected to be aware of this condition or have the opportunity to consider "prudent avoidance" strategies unless this issue is disclosed at the time they purchase a home.

This impact is considered significant because the project would unknowingly expose new residents in the planning area to EMF levels exceeding those associated with electric distribution lines.

#### **Mitigation Measures**

- 13.1: The precise electric and magnetic field strengths of the transmission lines in the Dougherty Valley planning area should be measured or modeled (using computer software) by a qualified professional and verified by PG&E. The project proponents should be responsible for obtaining these measurements, which should be made and submitted to the County prior to County approval of the final development plans for projects adjacent to the 230-kV lines. These

EMF measurements should be used by the project proponents and the County to implement mitigation measure 13.2.

- 13.2: The project proponents should determine the distance from the PG&E transmission lines at which electric and magnetic field strengths are equal to or less than those associated with local distribution lines. The project proponents should also identify the affected residential lots on proposed tentative maps. An advisory disclosure statement should be recorded on all deeds of properties within 200 feet of the location of the PG&E transmission lines, or the necessary distance based on the actual EMF measurements. The statement should disclose the potential adverse health effects of EMFs associated with the PG&E transmission lines and DHS's recommendation that individuals adopt a "prudent avoidance" strategy, limiting personal exposures to EMFs when it can be done at a reasonable cost and with reasonable effort. The County should require the disclosure statements as a condition of approval of any affected tentative maps.

or

- 13.3: The County and the project proponents may provide an added setback for homes from the transmission lines so that the EMF measurements equal those of local distribution lines.

Implementing mitigation measures 13.1 and 13.2 *or* 13.3 would reduce this impact to a less-than-significant level because residents would have the opportunity to consider "prudent avoidance" strategies to reduce their exposure to EMFs at the time they purchase a home.

#### **Impact: Potential Exposure of School-Age Children at Public School Sites to Electro-magnetic Fields**

No school sites are planned to be located near high-voltage transmission lines within the distance standards specified by the California Department of Education. The closest school site is approximately 800 feet east of the PG&E transmission corridor. This distance is also expected to be sufficient to maintain exposure of school sites to EMFs from high-voltage transmission lines at or below maximum EMF levels associated with general electric distribution lines.

This impact is considered less than significant because no school sites are planned to be located near high-voltage transmission lines within the California Department of Education's distance standards.

#### **Mitigation Measure**

No mitigation is required because this impact is considered less than significant.





## **Chapter 14. Housing, Population, and Employment**

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### **SETTING**

#### **Regional Context**

This chapter uses the Tri-Valley region as a study area. The Tri-Valley region includes the communities of Alamo, Blackhawk, Danville, and San Ramon in Contra Costa County (San Ramon Valley) and the communities of Dublin, Pleasanton, and Livermore in Alameda County (Amador Valley). "This subregion, commonly referred to as the Tri-Valley, is recognized as an economically, socially, and physically interrelated area" (Gruen Gruen & Associates 1987).

The Dougherty Valley planning area is within the Tri-Valley region, east of the City of San Ramon and bound by the Alameda County line to the south (Figure 14-1).

#### **Housing**

##### **Existing Supply**

The entire San Francisco Bay Area, including the Tri-Valley region, is experiencing a housing shortage. The Association of Bay Area Governments (ABAG) (1989) projected a requirement for the addition of 210,000 housing units between 1988 and 1995 to accommodate expected growth, and called on the region's local governments to alter existing housing policies to encourage production needed to house workers for jobs being planned in those communities.

In 1990, the Tri-Valley region supported approximately 79,300 housing units (Bay Area Council 1990, Association of Bay Area Governments 1989). More than half the population and housing supply of the region is concentrated in the southern portion of the region in Pleasanton, Livermore, and Dublin, where the median housing values are slightly lower than those in the northern portion of the region (Table 14-1).

The majority of housing in the region consists of single-family units. Over 90% of Danville's housing supply is comprised of single-family units, and single-family units account for between 71% and 79% of the remaining communities within the region. By comparison, 60% of the entire San Francisco Bay Area housing supply was comprised of single-family units.

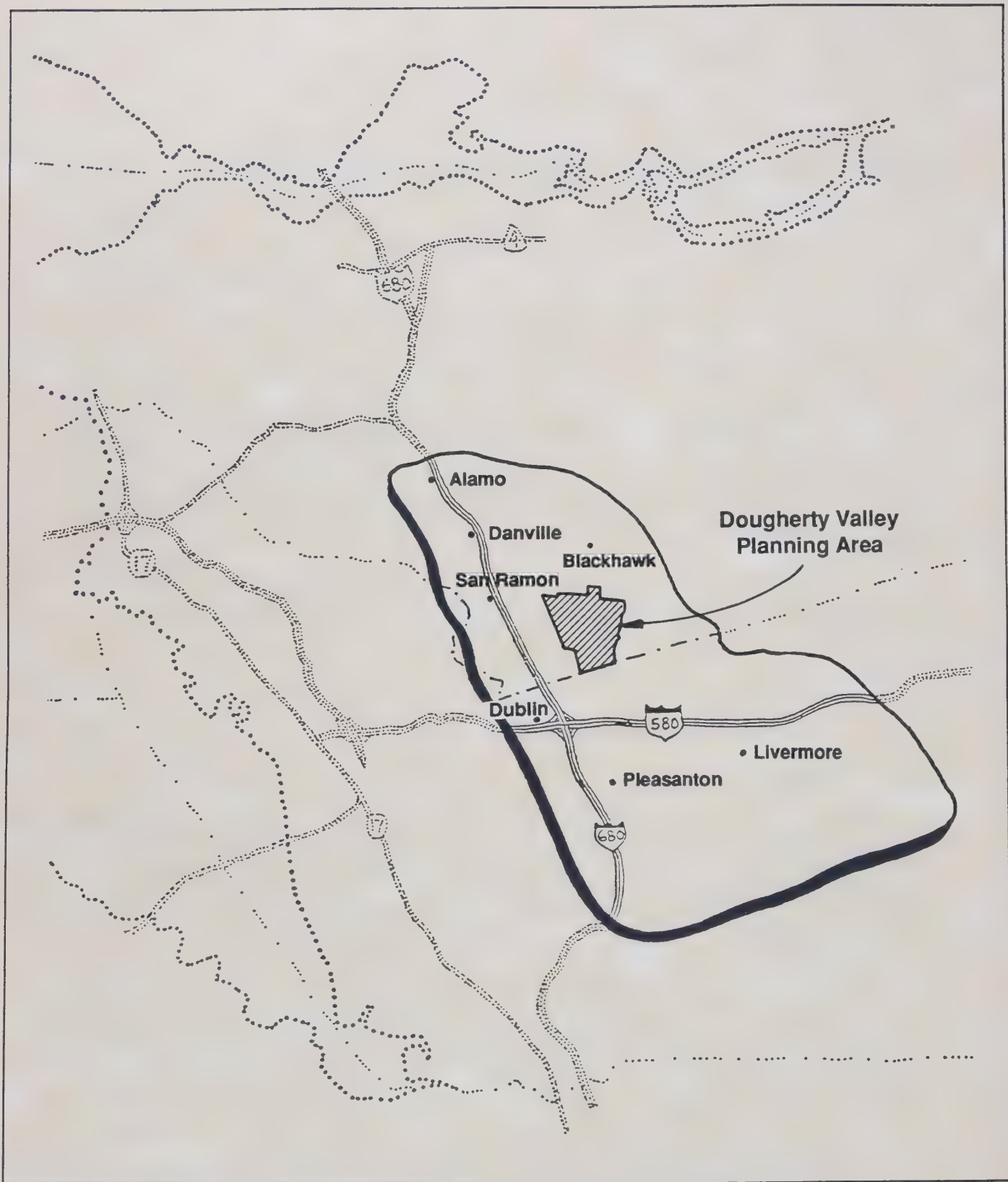


Figure 14-1. Tri-Valley Study Area

Source: Gruen Gruen & Associates 1987

Table 14-1. Tri-Valley Region Population, Housing, and Employment Data

Community	Population (1990)	Number of Dwelling Units (1990)	Percent Vacant (1990)	Median Home Value (Dollars)	Median Rent (Dollars)	Number of Employed Residents	Number of Jobs	Mean Household Income (Dollars)
Alamo/Blackhawk	19,000	6,430	NA	NA	NA	9,900	3,870	91,500
Danville	31,306	11,466	3.61	359,200	999	19,655	9,340	76,500
San Ramon	35,303	13,531	5.07	316,600	861	19,947	24,109	67,000
Dublin	23,229	6,992	2.72	240,900	811	12,004	12,203	49,100
Pleasanton	50,553	19,366	4.61	297,200	760	32,091	29,165	62,700
Livermore	<u>56,741</u>	<u>21,489</u>	3.94	217,300	660	<u>31,246</u>	<u>27,858</u>	<u>46,900</u>
Tri-Valley Region	216,132	79,264				124,843	106,645	63,763
Bay Area	6,023,677	2,356,323	5.03	NA	NA	3,163,080	3,072,938	NA

Note: Alamo/Blackhawk data and mean household income data for all communities obtained from the Association of the Bay Area Government's 1990 projections. Alamo/Blackhawk data is for households, not dwelling units.

NA = not available.

Source: Bay Area Council 1990.



Only one residence exists within the Dougherty Valley planning area, which is part of a cluster of buildings at the ranch headquarters in the south end of the valley.

### **Median Values and Recent Trends**

The San Francisco Bay Area has become one of the highest-priced housing markets in the United States for several reasons, including the desirability of the area and the shortage of housing available to the increasing work force. The Tri-Valley region is an example of such housing costs. The median home value in 1990 was \$359,200 in Danville, \$316,500 in San Ramon, \$297,200 in Pleasanton, \$240,900 in Dublin, and \$217,300 in Livermore. By comparison, the nationwide median housing price in 1990 was \$120,073, and the median housing price for the western region in 1990 was \$139,700 (Urban Land Institute 1991). A moderate-income family earning 120% of the Contra Costa County median income (\$56,150) and paying 30% of their gross income for housing would be able to purchase a home for up to \$132,000 (Table 14-2).

### **Vacancy Rates**

Vacancy rates in the Tri-Valley region range from 2.72% in Dublin to 5.07% in San Ramon for combined rented and owned units (Table 14-1). By comparison, the total residential vacancy rate for the San Francisco Bay Area was 3.4% in 1990. ABAG declared that vacancy rates at this level were "below an acceptable level to promote mobility and provide choices for those seeking affordable housing" and established a regional vacancy goal of 4.5%. This goal indicates that Livermore, Danville, and Dublin are experiencing a shortage of housing in general, not only housing affordable to lower-income households. Livermore and San Ramon achieved vacancy rates slightly above the regional goal of 4.5%. No information was available on vacancy rates within the Alamo/Blackhawk community.

### **Growth Rates**

Between 1980 and 1990, the Tri-Valley region grew at a faster pace than the San Francisco Bay Area. This growth can be attributed to the gradual movement of population northward from the San Francisco urban area. Growth was highest in San Ramon, where population increased by 76% during this period, compared to the entire San Francisco Bay Area, which grew by about 15%.

### **Housing Tenure**

According to ABAG (1989), "it is desirable as a general policy that the availability of rental housing should not decline in the Tri-Valley region". Nearly 73% of Tri-Valley residences were owner-occupied and 27% renter-occupied in 1987 (Gruen Gruen & Associates 1987). ■

Table 14-2. Projected Housing Need in the Tri-Valley  
Region by Purchase Price and Rental Cost

Income Category	Number of Units	Purchase Price	Monthly Rent Levels <sup>a</sup>
Very low	3,600	Less than \$55,000	Less than \$560
Low	2,566	\$55,000-88,000	\$560-880
Moderate	3,919	\$88,000-132,000	\$880-1,300
Above moderate	<u>9,505</u>	Above \$132,000	Above \$1,300
	19,590		

<sup>a</sup> Affordable to family of four based on 30% of Housing and Urban Development 1990 median income figures for the Oakland primary metropolitan statistical area (Alameda and Contra Costa Counties).

Source: Contra Costa County Community Development Department 1991.

## Regional Housing Needs by Income Level

California state law requires councils of government to determine existing and projected regional housing needs for persons at all income levels. ABAG's most recent housing needs determinations report was published in 1989 and addresses existing and projected regional housing needs for a nine-county region including Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties. ABAG categorizes the population into four income groups: very low-income households that earn less than 50% of the county median income, low-income households that earn between 50% and 80% of the county median income, moderate-income households that earn between 80% and 120% of the county median income, and above moderate-income households that earn over 120% of the county median income.

The ABAG report stresses the need for affordable housing for all income levels and recognizes the current housing shortage within San Francisco Bay Area. The following relevant policies and goals are listed in the executive summary of the housing needs report.

- On January 1, 1988, the housing vacancy rate was 3.58% below an acceptable level to promote mobility and provide choices for those seeking affordable housing. A regional vacancy goal of 4.5% was established.
- The region needs to add another 210,000 housing units between 1988 and 1995 to accommodate expected growth.
- To reduce jobs-housing imbalances in the region, 45,700 housing units are needed in the 38 communities, 17 of which are called on to house 50% of the difference between the growth in local jobs and the growth in the local labor supply.

Of the 210,000 units needed between 1988 and 1995, 20,000 are expected to be required within the Tri-Valley region. According to ABAG's projections, over 18% of the demand within the Tri-Valley region, or about 3,600 units would be generated by very low-income households. Low-income households would demand 2,566 units or 13% of the regional demand, moderate-income households are expected to demand 3,919 units or 20% of the regional demand, and above-moderate income households are expected to generate almost 49% of the region's housing demand, or 9,505 units (Figure 14-2).

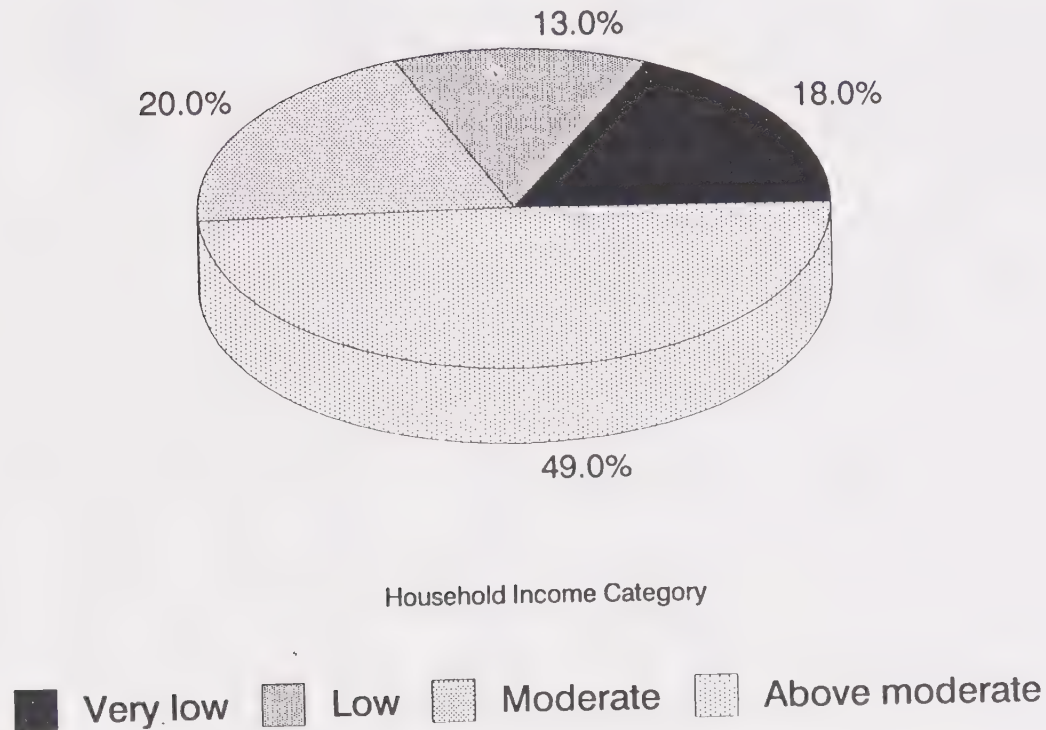
Income levels for the Tri-Valley region were obtained from the California Department of Housing and Community Development. Contra Costa and Alameda Counties showed identical median family incomes (\$46,800) for a family of four in April 1991. Income limits for each income category are as follows:

- Very low income:       \$23,400.
- Low income:           \$37,450.
- Moderate income:      \$56,150.

Households in the very-low-income category would be able to purchase a home priced at less than \$55,000 or rent a unit for less than \$560 a month. Households in the



Figure 14-2. Projected Percentage of  
Total Housing Demand to 1995  
by Income Category



Source: Association of Bay Area Governments 1989

low-income category would be able to purchase a home priced at less than \$88,000 or rent a unit for less than \$880 a month. The moderate-income category could afford a home priced less than \$132,000 or rent a unit for less than \$1,300 each month. No income limits apply to the above-moderate-income category.

## **Contra Costa County Housing Goals**

Goals and policies included within the Housing Element of the Contra Costa County General Plan are aimed at increasing housing opportunities and variety in the stock of affordable housing. Relevant general plan affordable housing goals, policies, and implementation measures are listed below.

- Goal 6-A. To make decent, safe and affordable housing available to all Contra Costa County residents.
- Goal 6-B. To make available a wide range of housing types and residential densities to meet the needs of all age groups and household sizes within Contra Costa County's population.
- Policy 6-1. A balance of housing types, tenures, densities, and price ranges shall be encouraged, supported, and stimulated.
- Policy 6-2. Land use regulations and development review procedures shall be designed to ensure an optimal effect on the quality and cost of housing and neighborhoods.
- Policy 6-3. Appropriate financial and non-financial assistance shall be committed to reducing the cost of development for very low- and low-income housing. Such assistance shall also be considered for moderate-income housing.
- Policy 6-6. Housing opportunities shall be provided for all economic segments of the population throughout the County.
- Implementation Measure 3-j. Provide incentives to encourage the construction of affordable housing in areas where few such opportunities exist and significant employment centers exist or are proposed.
- Implementation Measure 6-c. Apply the more extensive use of flexible techniques such as Planned Unit Developments and mixed residential and commercial developments to obtain a balance of housing types, tenures, densities, and price ranges.
- Implementation Measure 6-e. Encourage the creation of second units in appropriate single-family residential areas, in compliance with the County's adopted Residential Second Unit Ordinance, and consider the provision of rehabilitation

financial assistance to facilitate the creation of second units to low and moderate income households.

- Implementation Measure 6-h. Allow increases in density for developers providing housing for low- and moderate-income households, in accordance with California Government Code Section 65913.4, 65915, and 65917. Consider other incentives such as modified development standards consistent with factors such as age of residents, family size, etc.; fee waivers; and the transfer of development rights.

Incentives may be considered upon submittal of a proposal for the development of low- and moderate-income housing by a developer, or the County, on its own motion, may so propose. Consideration of incentives shall be carried out concurrently with applicable development review procedures. The Community Development Department may, subject to action by the Board of Supervisors, respond to proposals for development incentives for low- and moderate-income housing.

- Implementation Measure 6-i. Encourage throughout the County the utilization of alternate housing types such as manufactured housing, mobile homes, self-help housing, co-housing, and cooperative housing, through zoning ordinance provisions and other available means.
- Implementation Measure 6-j. Develop an inventory of, and evaluate mechanisms to preserve existing Single Room Occupancy (SRO) hotels and evaluate the potential for creating new SRO units.
- Implementation Measure 6-l. Continue to maintain an inventory of land available for multifamily development.
- Implementation Measure 6-s. Consider the waiver, to the extent possible, of development fees for developments serving very low- and low-income households.
- Implementation Measure 6-bs. Continue to support innovative semi-independent living programs such as congregate and shared housing for elderly and other population groups.
- Implementation Measure 6-bx. Offer incentives for developers providing housing for senior citizens, such as increases in density in addition to that specified in the Land Use Element of the General Plan, including the density bonuses provided for in California Government Code Section 65915 et seq., and modified development standards such as reduction in required parking, fee waivers, etc. Incentives may be considered upon submittal of a proposal for the development of senior citizen housing by a developer, or the County, on its own motion, may so propose. Consideration of incentives shall be carried out concurrently with applicable development review procedures. The Community Development



Department may, subject to action by the Board of Supervisors, respond to proposals for development incentives for senior citizen housing.

## **Balance of Jobs and Housing in the Tri-Valley Region**

### **Existing Jobs/Housing Ratio**

Within the Tri-Valley region, the ratio of jobs to employed residents increased from 0.63 in 1980 to 0.85 in 1990 and is projected to increase to 0.99 in 2005 as employment-generating enterprises move to the suburbs of San Francisco (Association of Bay Area Governments 1989). The increasing ratio indicates an increasing number of jobs in the Tri-Valley region without a parallel increase in housing units.

Gruen Gruen & Associates analyzed the balance between affordable housing and employment in the Tri-Valley region in 1987. Windemere contracted the report as a market analysis to determine housing values that would match family incomes of employees of the Hacienda and Bishop Business Parks (Foreman pers. comm.). The analysis concluded that the Tri-Valley region was fulfilling only 41% of the existing housing demand by local employee households. The following description includes excerpts taken verbatim from the Gruen Gruen & Associates report.

The report demonstrated that the 96,200 people employed in the region would need 52,600 homes to achieve a jobs/housing balance. The report considered the number of dwelling units occupied by nonemployee/retired individuals and individuals that worked outside the region, and estimated that of the 68,600 occupied dwelling units in the region, approximately 30,900 were occupied by households with at least one local employee. This implied a shortfall of 21,700 dwelling units for local employee households, or 41% of the existing need. As a result, around 40,000 workers lived outside the Tri-Valley region and commuted to their jobs within the region, including some who commute to Central Valley cities, such as Modesto, Stockton, and Manteca.

After identifying the shortfall, the study examined the relationship between the price distribution of Tri-Valley housing and the household income distribution of local employees in order to quantify the balance between the supply and demand for housing by affordability levels in this region. The largest housing deficit occurs for households in the lowest household income category. The report concluded that:

because the Tri-Valley is projected to experience healthy employment growth over the next 20 years, the demand for affordable housing by local employees will continue to grow. If the housing imbalance described in this report continues to worsen, it is likely that the long-term economic viability of the region will weaken as businesses relocate to regions which better satisfy employee housing needs. Overall, increasing the supply of dwelling units in the Tri-Valley area should decrease commuter traffic and help maintain a healthy economic climate in the region. (Gruen Gruen & Associates 1987.)

It is important to note that the report used liberal standards to calculate affordability. It was assumed each household would be able to make a 20% down payment and that interest rates on a adjustable rate mortgage would start at 7.85% and increase to 9% within 3 months. In addition, expenses such as taxes, insurance, and utilities were not factored into the affordability levels. This liberal calculation method may have resulted in an underestimation of the units required in the lower price categories.

### **Contra Costa County Jobs/Housing Goals**

Job creation has occurred at a faster pace in the western portion of the County than in the eastern portion, where housing growth has outpaced employment growth. The County expects the countywide jobs/housing ratio to remain relatively constant throughout the next 20 years, reaching approximately 0.74 jobs per employed resident by 2010. The following County general plan goals, policies, and implementation measures support the County's dedication to reaching a jobs/housing balance.

- Goal 3-K. Develop a balance between job availability and housing availability with consideration given to wage levels, commute distance and housing affordability. The individual characteristics of the several subregions of the County and their interaction with other regions shall be considered when establishing criteria for delivering that balance.
- Policy 3-1. Housing infill shall be supported and stimulated where the jobs/housing ratio shows an overabundance of jobs to housing.
- Policy 3-3. As feasible, areas experiencing rapid urban growth shall be developed so as to provide a balance of new residential and employment opportunities.
- Implementation Measure 3-g. Adopt land use regulations which allow mixed use developments as a mechanism for achieving a jobs/housing balance.
- Implementation Measure 3-h. Require staff reports on development applications for residential developments of 100 or more units to address the impact of that development upon the subregional jobs-housing balance.
- Implementation Measure 3-i. Require staff reports on development applications for commercial, light industrial and office development of more than 10,000 square feet or generating 25 or more jobs to address the impact of that development upon the subregional jobs/housing balance.
- Implementation Measure 3-j. Provide incentives to encourage the construction of affordable housing in areas where few such opportunities exist and significant employment centers exist or are proposed.

## **Population**

The population of the Tri-Valley region has increased at a rapid pace during the past decade and is expected to maintain that pace during the next 10 years. Between 1980 and 1990, the population of the Tri-Valley region grew from 158,945 to 216,132 (a 36% increase). Between 1990 and 2000, the population is expected to grow to 297,900 (an increase of 37.8% over 1990). By comparison, the San Francisco Bay Area grew by only 16.3% between 1980 and 1990, indicating that the urban areas surrounding San Francisco are becoming built out or housing is becoming prohibitively expensive, thereby forcing development to spread into the suburbs.

The most rapid growth within the Tri-Valley region occurred in the Alamo/Blackhawk community, where the population increased by 82% between 1980 and 1990. San Ramon also grew at a relatively rapid pace during that period, increasing its population by 74.4%.

## **Employment**

### **Existing Regional Employment**

In 1988, Contra Costa County's largest employment sector was services, employing 68,200 people (24.6% of the County work force). The retail trade sector was the second largest industry, employing 57,000 people (20.5% of the County work force).

The services sector is expected to show the greatest number of additional jobs between 1988 and 1993, growing by 30.1% to 88,700 workers. The second largest future growth sector is retail trade, projected to grow to 66,500 workers, an increase of 16.7%.

The Dougherty Valley planning area consists of two private properties that are generally undeveloped and leased to ranchers who run cattle in the area on a seasonal basis. Grain is grown in the flat valley region, and fields are rotated out of production every 3 years. The site supports only a small number of cattle ranch-related employees at the current time.

### **Employment Centers**

One of the stated purposes and objectives of the project is to provide needed housing in a suitable location to meet the demand generated by major nearby employment centers. "Major nearby employment centers" refers to Bishop Ranch Business Park in San Ramon, Hacienda Business Park in Pleasanton, and the planned business park development in Dublin. According to the Gruen Gruen & Associates report (1987),



the occupational mix in the Tri-Valley differs from the mix in the primary employment center of the San Francisco Bay Area. Major corporations such as Chevron, Pacific Telephone, AT&T Communications and General Electric have elected to transfer their "back office" divisions (such as accounting, data processing and credit) to the Bishop Ranch and Hacienda Business Parks. The product of these shifts is an employment base in the Tri-Valley characterized by households estimated to have incomes between \$25,000 and \$75,000.

Lawrence Livermore Laboratories in Livermore is another major Tri-Valley region employment center.

## **Unemployment**

Unemployment in Contra Costa County followed national and statewide trends of declining unemployment rates between 1983 (when the unemployment rate was about 8%) and 1989 (when it dropped to 4.2%). Between 1989 and 1990, the unemployment rate rose slightly to 4.3%. (California Employment Development Department 1991.)

## **IMPACTS AND MITIGATION MEASURES ASSOCIATED WITH THE SPECIFIC PLAN**

### **Methodology and Significance Criteria**

#### **Methodology**

Existing plans and policies included in the Contra Costa County General Plan, ABAG's housing needs determination, and results of the Gruen Gruen & Associates report were compared to the goals and policies of the DVDSP to determine the project's compliance with these plans and the effect of the project on the existing jobs/housing imbalance.

#### **Significance Criteria**

Significance criteria used in this section are taken directly from Appendix G of the State CEQA Guidelines, which states that a project will normally have a significant effect on the environment if it will:

- conflict with adopted environmental plans and goals of the community where it is located or
- induce substantial growth or concentration of population.

Section 15131 of the State CEQA Guidelines states that "economic or social effects of a project shall not be treated as significant effects on the environment." Socioeconomic impacts must be discussed only when the socioeconomic impact indirectly causes a physical impact, or the severity of a socioeconomic impact is used to decide the significance of the physical impact.

Secondary physical impacts, such as increased traffic, air pollution, and impacts on existing public services and facilities caused by increases in population and housing, are discussed in detail in the appropriate chapters of this report.

### **Key Assumptions**

The following assumptions were used to estimate the number of employed residents and the number of jobs generated by the project:

- existing numbers of workers per household is 1.83,
- average population per household by 2005 would be 2.74 persons,
- retail and commercial space would generate an average of one employee for every 450 square feet of space,
- office space would generate an average of one employee for every 250 square feet of space,
- elementary schools would generate an average of 31 full-time employees,
- middle schools would generate an average of 45 full-time employees, and
- high schools would generate an average of 93 full-time employees.

### **Project-Related Impacts**

#### **Impact: Population Increase of About 29,000**

Implementing the project would result in the addition of about 29,000 people, a 14% increase in Tri-Valley region population. This number was calculated by multiplying average populations per household for the planning area (2.74 for 2005) by the expected number of dwelling units (11,000) that the project would support at buildout.

This impact is significant, but is neither beneficial or detrimental because the increased population would not in itself constitute a significant environmental impact. It would, however, indirectly result in significant environmental impacts, such as increased

traffic congestion, deterioration of air quality, and increased demand on public services and facilities. These impacts are discussed in detail in other chapters of this report. It should be noted that although these indirect impacts would result, a portion of the project residents would be moving closer to their workplace and would partially offset traffic and air quality impacts by reducing their commute distances.

### **Mitigation Measure**

Mitigation for the indirect impacts is discussed in other chapters.

### **Impact: Addition of 11,000 Units to the Tri-Valley Region Housing Supply**

Implementing the project would result in a 14% increase in the available housing supply by adding up to 11,000 new housing units to the Tri-Valley region. At least 60% of the units would be owner occupied.

This additional housing would result in increased economic activity in the area and could contribute to the affordability of the area by offering a greater supply of housing and alternatives to future home buyers. It is the goal of the state to "assure to all Californians the opportunity to obtain safe, adequate housing in a suitable living environment" (California Department of Housing and Community Development 1987).

This increase in housing stock is considered a beneficial impact. However, the indirect effect of new population growth is significant and is discussed elsewhere in this EIR.

### **Mitigation Measure**

No mitigation is required because an increase in housing stock is considered a beneficial impact.

### **Impact: Increased County Employment**

Implementing the project would result in the addition of more than 2,500 new jobs. These jobs would include retail and professional positions in the planned village center and public school positions. This number was derived using estimates for average numbers of employees per square foot of building space, as displayed in Table 2-2 of Chapter 2, "Project Description". The analysis assumes one employee to every 450 square feet of retail and commercial space and one employee to every 250 square feet of office space. It also assumes 306 public school employees, based on 31 employees for each of the four elementary schools, 44.5 employees for each of the two middle schools, and 93 employees for the high school. (California Office of Planning and Research 1984, Moody pers. comm.)



The increase in employment is generally considered a beneficial effect, and the types of jobs created will include a variety of skill levels, educational requirements, and salary rates.

### **Mitigation Measure**

No mitigation is required because an increase in County employment is considered a beneficial impact.

### **Impact: Improvement in Existing Jobs/Housing Ratio**

The project would create 6,010 new employed residents within the region (based on a worst-case scenario that all new residents would be new employees in the region), resulting in a jobs-to-employed resident ratio within the planning area of 0.42. This ratio is much lower than the region's 0.85 ratio in 1990 and projected 0.99 ratio for 2005. Although the project would also add over 2,500 new jobs to the region, the increase in housing would be large enough to decrease the jobs-to-employed resident ratio.

As noted in the "Setting" section of this chapter, the Gruen Gruen & Associates report indicated that the Tri-Valley region was experiencing a severe shortage of housing based on the number, type, and salary range of jobs within the region. An increasing ratio of jobs to employed residents was projected, indicating increases in commuting to and from the Tri-Valley region. Assuming that Tri-Valley employees prefer to live in the region they work, the existing housing shortage of affordable housing to each income category is resulting in longer commutes, increased energy consumption, decreased air quality, and a general decrease in the quality of life for those spending more time commuting each day.

Implementing the project would result in up to 11,000 new housing units, 25% of which would be priced to be available to low- and moderate-income households. One of the project objectives is to provide homes offering a diverse range of housing types and densities for all age groups and housing sizes.

This impact is considered beneficial because the project would help to relieve the existing housing shortage and would encourage employees of the Tri-Valley region to reside in the same region. This impact would result in a decrease in the ratio of jobs to employed residents.

### **Mitigation Measure**

No mitigation is required because a decrease in the existing jobs/housing ratio is considered a beneficial impact.

**Impact: Consistency with Contra Costa County's Affordable Housing Policy and ABAG's Fair Share Allocation for the County**

The proposed project would conform to the County's affordable housing policy or ABAG's fair share allocation.

Implementing the project would result in the addition of 2,750 housing units in good to excellent condition to the housing supply available to low- and moderate-income households. By providing a range of housing types and prices, the proposed project would help to achieve the region's fair share of affordable housing and could help implement the relevant Contra Costa County General Plan policies listed above.

This impact is considered beneficial because the project would conform to ABAG's regional fair share allocation and with the County's general plan housing goals and policies.

**Mitigation Measure**

No mitigation is required because this is considered a beneficial impact.

**Cumulative Impacts**

The regional analysis described above indicates that the project would benefit the region by providing needed housing and decreasing the jobs/housing ratio, which would theoretically result in shorter commutes and less traffic, noise, and air pollution. The contribution of the project to cumulative housing and jobs/housing issues would be similar because the project would contribute to future housing needs generated by all existing and future employment-generating activities in the region.





## **Chapter 15. Visual Quality**

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### **BACKGROUND**

Visual quality has been defined as the "visual significance given to a landscape determined by cultural values and the landscape's intrinsic physical properties" (Smardon et al. 1986). Visual resources are elements or combinations of elements in the landscape, such as landform, water, vegetation, and structures, that may be described without reference to quality (U.S. Soil Conservation Service 1978). A landscape's visual quality, therefore, is a value rating of the aesthetic significance of a view or collection of views of the landscape's visual resources as influenced by the cultural values of the observers.

Preserving the landscape's visual quality has been identified as important to the public and is strongly supported by government agencies and Federal law (e.g., U.S. Forest Service 1974, Smardon et al. 1986, National Environmental Policy Act, and Federal Land Policy and Management Act). Considering and minimizing aesthetic impacts is also an important part of State and local government environmental regulations in California.

### **Contra Costa County General Plan Visual Quality Goals**

Preserving the scenic resources of Contra Costa County is an important goal identified in the County's general plan. Scenic vistas available throughout the County are primary reasons why the County is perceived as a desirable place to live and work. Preserving the quality of visually sensitive features of the County's landscape will help preserve and reinforce its rural landscape character and balance the effects of development. (Contra Costa County Community Development Department 1991.)

Goals addressing the importance of preserving aesthetics and visual quality are identified in various elements of the County's general plan. The transportation and circulation element designates scenic routes throughout the County that have rural and natural scenic qualities that should be protected. The land use element of the general plan identifies goals and policies for development and project design that reinforce the aesthetic character and images of the County, encourage the uniqueness of its communities, and enhance scenic quality. The open space element identifies goals for preserving and protecting areas of high scenic value, including scenic ridges, hillsides, and rock outcroppings.

The Open Space Conservation Plan (Contra Costa County 1973) states that the scenic resources of the County are abundant and of very high quality and identifies the most popular views as the rural agricultural and natural landscape. The plan further states that

"the visual qualities of both the natural and human-made landscapes are of major importance" and identifies scenically important elements to include narrow wooded canyons and "dramatic panoramic views" from peaks and ridges (Contra Costa County 1973).

### **Terminology for Describing Visual Resources and Quality**

Various terms are used by Federal agencies and other entities to describe and assess visual resources and visual quality. Important terms used in this report are defined below.

**Landscape character zones:** Landscape subregions distinguished by generally congruent physiographic characteristics and land use patterns.

**Distance zones:** Divisions of a particular landscape viewshed based on the spatial separation between observer and subject (U.S. Army Corps of Engineers 1984). Distance zones are generally categorized as foreground, middleground, and background, with precise distances for each zone varying with terrain and atmospheric and other conditions (U.S. Forest Service 1974, U.S. Bureau of Land Management 1980).

**Visibility:** The geographic extent and legibility of features of a visual resource that can be seen by an observer from a particular location (U.S. Army Corps of Engineers 1984).

**Intactness:** The visual integrity of the natural and built landscape and its freedom from encroaching elements (U.S. Department of Transportation 1981).

**Visual unity:** The visual coherence and compositional harmony of the landscape considered as a whole (U.S. Department of Transportation 1981).

**Visual absorption capability (VAC):** A measure of the landscape's ability to absorb alteration yet retain its visual integrity and that identifies the landscape's susceptibility to visual change (Anderson et al. 1979). An area with a low visual absorption capability will not easily absorb new elements without a reduction in visual quality. VAC would generally be low for areas of low relief, sparse or low-growing vegetation, and low diversity of natural or built elements. An area would generally have a high VAC if it contains a high diversity of natural and built forms and elements.

## **SETTING**

### **Regional Visual Resources, Character, and Quality**

The landscape of southern Contra Costa County is largely a mix of rural, pastoral lands and expanding residential and commercial development. Natural features and character have been largely replaced by urban and suburban land uses in large portions of



the region. Areas with intact natural character are confined mostly to the higher elevations surrounding the Tri-Valley region, such as Mt. Diablo State Park to the north, Las Trampas Regional Wilderness to the west, and Morgan Territory Regional Preserve to the east.

The Tri-Valley region contains visual resources representative of California's northern coast range and inland valley landscapes. These visual elements include expansive grass-covered grazing lands; steep, rolling hills and narrow ravines; broad valleys and prominent ridges; meandering tree-lined creeks and drainages and oak woodlands; and pasturelands, dryland farmlands, orchards, and row croplands. Ridgelines are visually prominent landform features. The visual quality of the region is based largely on its rural, pastoral character and its topographic diversity. Scenic routes and ridges, some of which are identified in the County's general plan, provide important public access to and serve as important visual resources in the region.

### **Regional Landscape Character Zones**

To provide a context for assessing visual resources, landscape character zones for the Tri-Valley region are described below. The Open Space Conservation Plan (Contra Costa County 1973) identifies two physiographic regions in southern Contra Costa County: the Diablo Range and the Diablo-San Ramon Valley.

The landform of the Diablo Range character zone consists generally of rolling and steep hills, rock outcrops, ravines, and valleys. Elevations range from about 100 feet to 3,849 feet at the summit of Mt. Diablo. Ridgelines are visually prominent landform features. Surface water occurs uncommonly as small, perennial streams; seasonal runoff in drainages; and occasional small reservoirs and stock ponds that are scattered throughout the area. Where perennial and seasonal streams occur, they are important and noticeable elements in the landscape. Vegetation consists mostly of extensive annual grasslands throughout the zone. Other prevalent vegetation consists of oak woodlands and chaparral found mostly on north and east slopes, wooded riparian corridors along stream courses and drainages in ravines and valleys, and scattered oaks in the valleys. Land uses consist predominantly of grazing and open space, with some areas developed for dryland farming, recreation, sparse rural residences, and windfarms.

The Diablo-San Ramon Valley character zone consists predominantly of rolling hills and grasslands. This zone ranges in elevation from about 300 feet to about 1,000 feet. Surface water is not a prevalent visual element in the landscape of this character zone, although small stock ponds and reservoirs are scattered throughout the region and the effects of surface drainage is also prevalent. Where perennial and seasonal streams occur, they are important and noticeable elements in the landscape. Original vegetation has been largely replaced or altered by agricultural, residential, and commercial land uses. Remaining vegetation in this zone consists of grasslands, some scattered oaks, and some riparian areas. Land uses consist mostly of orchards, row crops, and rural to low-density residential development. This zone contains several rapidly growing urban and suburban communities that are experiencing rapid conversions of agricultural and open space lands to residential and commercial uses.



## Planning Area Visual Resources, Character, and Quality

The planning area consists of approximately 6,000 acres located in the center of the region described above. Figure 15-1 indicates photograph locations in the planning area. Figure 15-2 shows views from Dougherty Road of the central portion of the planning area. The area is topographically diverse, consisting largely of steep, rolling hills; narrow ravines; and a broad, central valley that contains meandering watercourses. Numerous prominent, rolling ridges are highly visible against the sky. Land slumps and small alluvial fans are scattered topographic elements that provide microrelief and visual variety.

Vegetation is sparse, consisting mostly of low-growing annual grasslands and occasional areas of riparian vegetation along watercourses and drainages in the valley and ravines. Tall eucalyptus trees mark the location of a rural building complex (i.e., the ranch headquarters) near the confluence of the valley's principal creeks (photographs 3 and 4, Figure 15-3). The area is mostly pastoral in character and is extensively grazed. Few structures are visible from public roads in the area. The building complex, fences, and narrow, winding Dougherty Road add to and blend with the area's rural character.

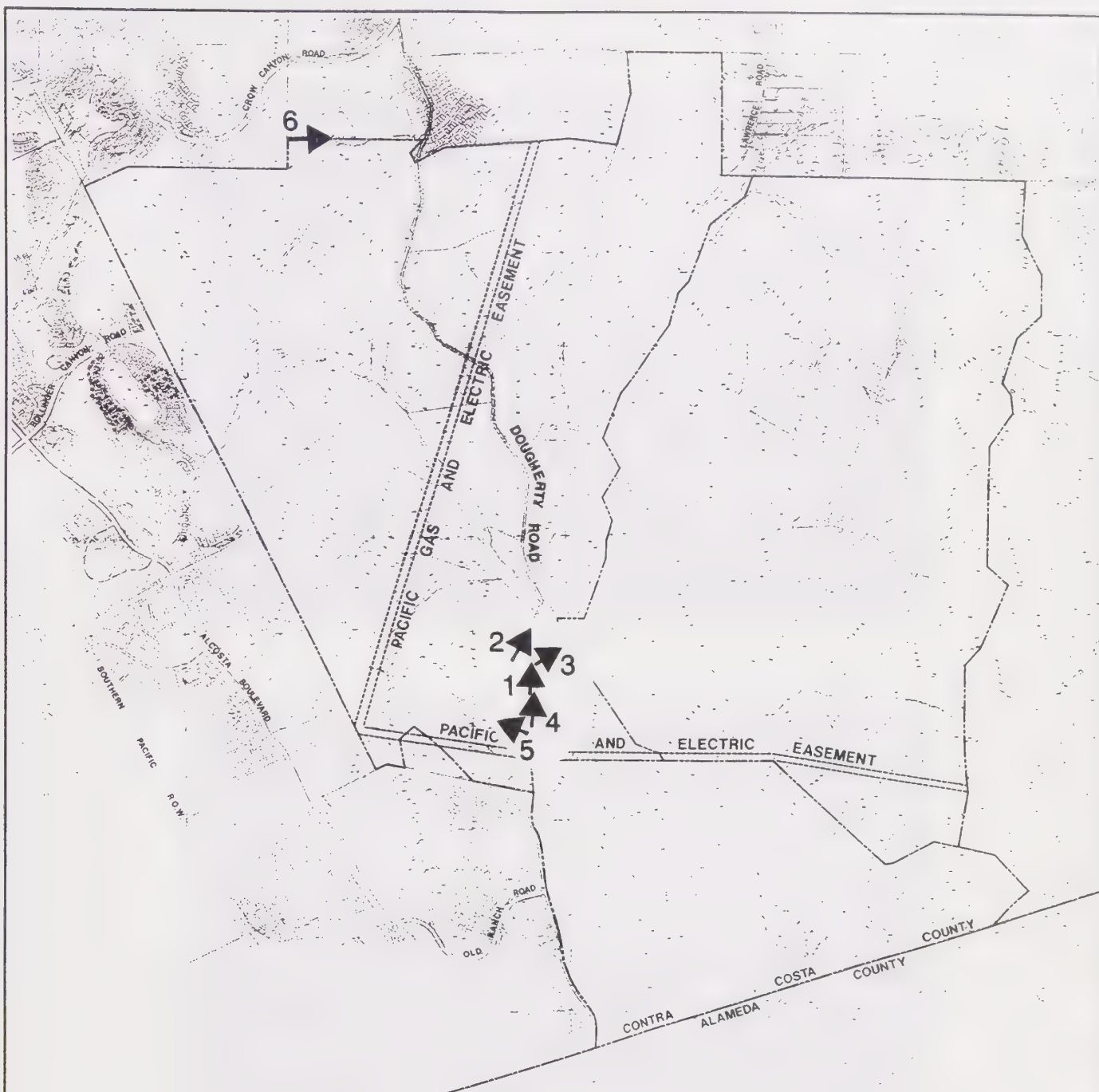
Although the planning area does not appear to possess many unique or distinctive visual characteristics, it displays a bucolic and natural character that is becoming increasingly rare in the region. Many portions of the site are visible to the public from the scenic route designated Dougherty Road and trails, parklands, and residences in the region. The site exhibits a high degree of intactness (i.e., freedom from encroaching elements) and visual unity of elements (i.e., visual coherence and compositional harmony).

Surface water is not a prevalent element of the visual character of the area. Surface water occurs as scattered small reservoirs and stock ponds, seasonal flows in the main and west branches of Alamo Creek, and small tributary drainages. Where stream courses and drainages occur, they are important and noticeable elements in the landscape.

Unique and high-quality views from the area are primarily toward Mt. Diablo to the north (photograph 4, Figure 15-3) and toward other prominent ridges to the west and east.

Highly important visual resources of the watershed include wildlife, particularly raptors such as golden eagles, turkey vultures, and prairie falcons; wildflower displays during spring; seasonal changes in color of the grasses; and the summer fog that rolls in and out of the area, often on a daily basis.

Visual intrusions to the area that diminish its rural visual quality and bucolic character include overhead power transmission lines that traverse the west-central part of the site; a large, light-colored water tank at the south edge of the site (photograph 5, Figure 15-4); and new residential development visible to the west, south, and north (photograph 6, Figure 15-4).



3➔ Photograph Location

Figure 15-1. Photograph Locations in the Dougherty Valley Planning Area





Photograph 1



Photograph 2

Figure 15-2. Views of the Planning Area from Dougherty Road  
(See Figure 15-1 for Photograph Locations)





Photograph 3



Photograph 4

Figure 15-3. Views of the Planning Area from Dougherty Road  
(See Figure 15-1 for Photograph Locations)



Photograph 5



Photograph 6

Figure 15-4. Views of the Planning Area from Dougherty Road  
(See Figure 15-1 for Photograph Locations)



## Visibility

Because of the rolling and varied topography, vistas and viewing opportunities vary throughout the planning area. In the lower elevation zones throughout most of the area, views from the site are generally limited by the surrounding steep slopes and ridges to foreground and middleground distances. (The foreground distance zone for this area is defined roughly as the area from the viewer to 0.25-0.5 mile from the viewer, and the middleground distance zone is defined roughly as the area from the foreground zone boundary to 1-1.5 miles beyond the viewer. The background zone lies beyond the middleground zone.) Views from the central valley and higher elevation upper slopes and ridgetops are expansive and include broad, sweeping vistas of the surrounding landscape, including areas in the background distance zone.

Visibility of features on the site is enhanced by low grassland cover that characterizes much of the area. Any vertical or linear elements, or elements that contrast in form, line, scale, texture, pattern, or color with their surroundings, often tend to be strong points of visual focus and attention in the landscape. Throughout much of the year, the area's annual grasslands are light green or yellow, providing a strongly contrasting background for darker-colored natural and structural elements. Most elements that occur in grasslands, on upper slopes, or along ridgelines are highly visible.

Visibility is also a function of access (i.e., how much of an area can be seen, who sees it, for how long, how often, and from what locations and directions). The planning area has private farm access roads and trails, most of which are inaccessible to the public. Dougherty Road is heavily used by weekday commuters and recreational travelers, who appear to represent the majority of viewers. Limited weekday observations indicate that commuters travel the road at high speeds; thus, viewing times are short and the field of view is narrowed. Although the number of viewing opportunities from the road is high, views are probably of moderate importance to regular commuters.

Views into Dougherty Valley are available from a number of locations surrounding the planning area (Figure 15-5). Residences to the west and north have expansive views of the planning area that are probably of high importance. Views into the site are from residences in the Canyon Lakes development and from residences and commercial facilities near Bollinger Canyon Road. Views into the site are also available from Camino Tassajara south into the site at Lawrence Road and the Dougherty Road entrance to the site. In addition, new residences and residences that are currently under construction on the west side of Dougherty Road north of Old Ranch Road and south of the planning area are located to have views into the planning area. Most of the site, however, is not visible from existing residences and major roadways surrounding the site.

Recreational walkers and bicyclists would probably expect to experience high-quality views of the area. Dougherty Road is designated in the County general plan as one of only a few bike trails in the southcentral area of the County. Important hiking trails exist and are proposed for areas that have views of the planning area. Also, hikers view the planning area from surrounding recreational lands of regional importance.



## **Visual Absorption Capability**

The general openness and dominant light-colored and fine-textured grasslands contribute to the area's high degree of visibility and low visual absorption capability. Visual absorption capability refers to the capability of an area to absorb new or altered elements without detracting from the area's character or quality. A low absorption capability indicates that new elements placed in the landscape will not easily be visually absorbed and could thus reduce visual quality.

To maximize visual absorption and avoid a negative visual effect, elements constructed in the area should be small in scale and horizontally oriented; be located in areas away from ridgelines; and adhere to natural contours, vegetation, and land use patterns. Large-scale or vertical elements would not easily be absorbed into the area's visual character.

## **Landscape Intactness**

The current landscape is highly intact, with few elements that are intrusive or that detract from its character and quality. Elements that support the area's intactness (i.e., elements that appear fitting and representative of its character) generally represent and reinforce the area's rural-pastoral character and include small-scale rustic agricultural structures; occasional residences not near or on ridgelines; wooden-post fences; winding, narrow roads that adhere to the natural landform; and occasional wooden-pole power lines.

Elements that disrupt the area's intactness and pastoral and natural character include metal-tower power transmission lines, wide and straight roads, large road cuts and fills, structures on or near ridgelines, and linear elements such as fences or roads that do not follow the natural landform.


## **Relevant Contra Costa County Plan Policies**


The following County scenic resources policies to conserve the scenic beauty of the County are applicable to the project.

- Policy 9-11. High quality engineering of slopes shall be required to avoid soil erosion, downstream flooding, slope failure, loss of vegetative cover, high maintenance costs, property damages, and damages to visual quality. Particularly vulnerable areas should be avoided for urban development. Slopes of 26 percent or more shall be protected and are generally not desirable for conventional cut-and-fill pad development. Development on open hillsides and significant ridgelines shall be restricted.
- Policy 9-12. In order to conserve the scenic beauty of the County, developers shall generally be required to restore the natural contours and vegetation of the

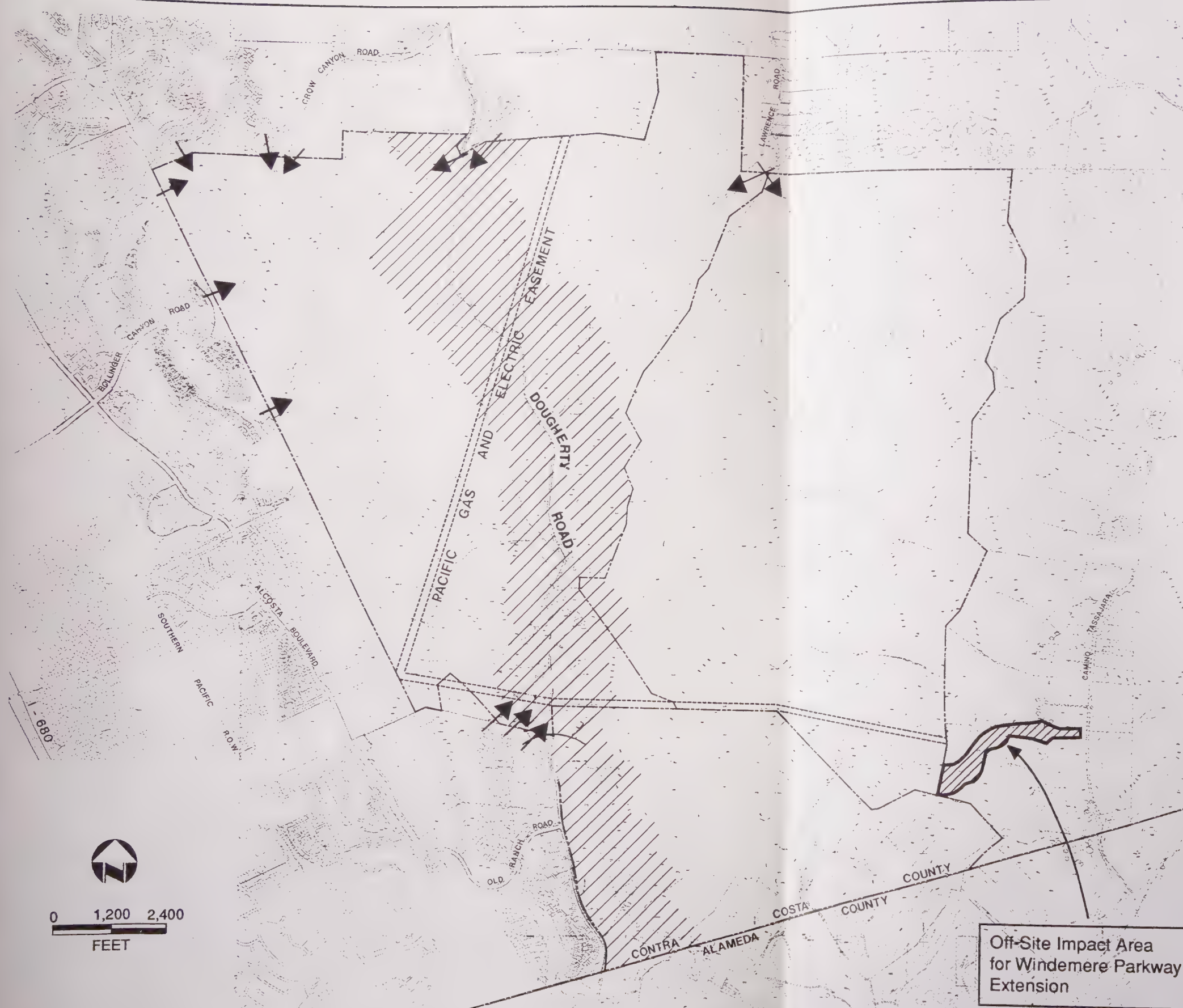
Figure 15-5.  
Views from Existing  
Residential Areas and  
Scenic Corridor in the  
Dougherty Valley  
Planning Area

**LEGEND**

 Dougherty Road Scenic Corridor (approximate)

 Views of the Dougherty Valley Planning Area from adjacent residential areas

Note: Scenic corridor area is approximate foreground distance zone for Dougherty Road.







land after grading and other land disturbances. Public and private projects shall be designed to minimize damages to significant trees and other visual landmarks.

- Policy 9-18. The construction of new structures on the top of major scenic ridges or within 50 feet of the ridgeline shall be discouraged.
- Policy 9-19. When development is permitted to occur on hillsides, structures shall be located in a manner which is sensitive to available natural resources and constraints.
- Policy 9-20. Hilltops, ridges, rock outcroppings, mature stands of trees, and other natural features shall be considered for preservation, at the time that any development applications are reviewed.
- Policy 9-21. Any new development shall be encouraged to generally conform with natural contours to avoid excessive grading.
- Policy 9-22. All new land uses which are to be located below a major ridge shall be reviewed with an emphasis on protecting the visual qualities of the ridge.
- Policy 9-24. The appearance of the County shall be improved by eliminating negative features such as non-conforming signs and overhead utility lines, and by encouraging aesthetically designed facilities with adequate setbacks and landscaping.

## **IMPACTS AND MITIGATION MEASURES ASSOCIATED WITH THE PROJECT**

### **Methodology and Significance Criteria**

#### **Methodology**

Although individuals may value the visual resources of a landscape differently based on their personal preferences, cultural biases, and motives, literature on the subject indicates that there is broad agreement among people living in a region as to what constitutes visual quality (U.S. Forest Service 1974, U.S. Dept. of Transportation 1981, Smardon et al. 1986). Widely accepted and defensible processes and techniques have been developed and applied for assessing landscape visual resource quality (Smardon et al. 1986). The impacts described in this section have been determined based on principles and qualitative processes that have been developed and are widely used by Federal agencies for visual quality analyses. Analysis of visual quality in this report is based on the context and character of the regional landscape and values and priorities reflected in the attitudes of County residents, as described in the County general plan. Goals, policies, and implementation measures

described in the general plan are used as the basis for evaluating visual impacts associated with this project.

The visual character and resources of the region and the planning area have been identified and described above. Visual resources of high sensitivity generally are those that are of high visual quality, highly intact, visible to many people (with higher importance given to recreationists and viewers from residences), close to viewers (e.g., in the foreground distance zone), and have low visual absorption capability. Visual resource sensitivity has been assessed using qualitative ratings of visual quality and ratings of visibility and visual absorption capability.

Important views of the planning area from surrounding areas have been identified through field observations. Three locations identified as important entries, or gateways, to the planning area were selected for simulating views of the project's appearance after construction. For each selected view, photographs of the planning area were made and computer-generated photorealistic visual simulations were prepared to illustrate how the view is expected to appear after project completion. The photographs and visual simulations may be used in combination to evaluate some of the visual impacts of the project (Figures 15-2, 15-3, 15-4, 15-6, 15-7, and 15-8).

For each important component of the project, impacts on visual resources have been identified. Visual resource impacts are determined by evaluating what effects each project element would have on views and potential users. Impacts on views have been identified for the postconstruction conditions.

### **Significance Criteria**

Significance criteria used in this section are based on Appendix G of the State CEQA Guidelines. The guidelines applicable to visual impacts state that a project will normally have a significant effect on the environment if it will conflict with adopted environmental plans and goals of the community where it is located or will have a substantial, demonstrable negative aesthetic effect.

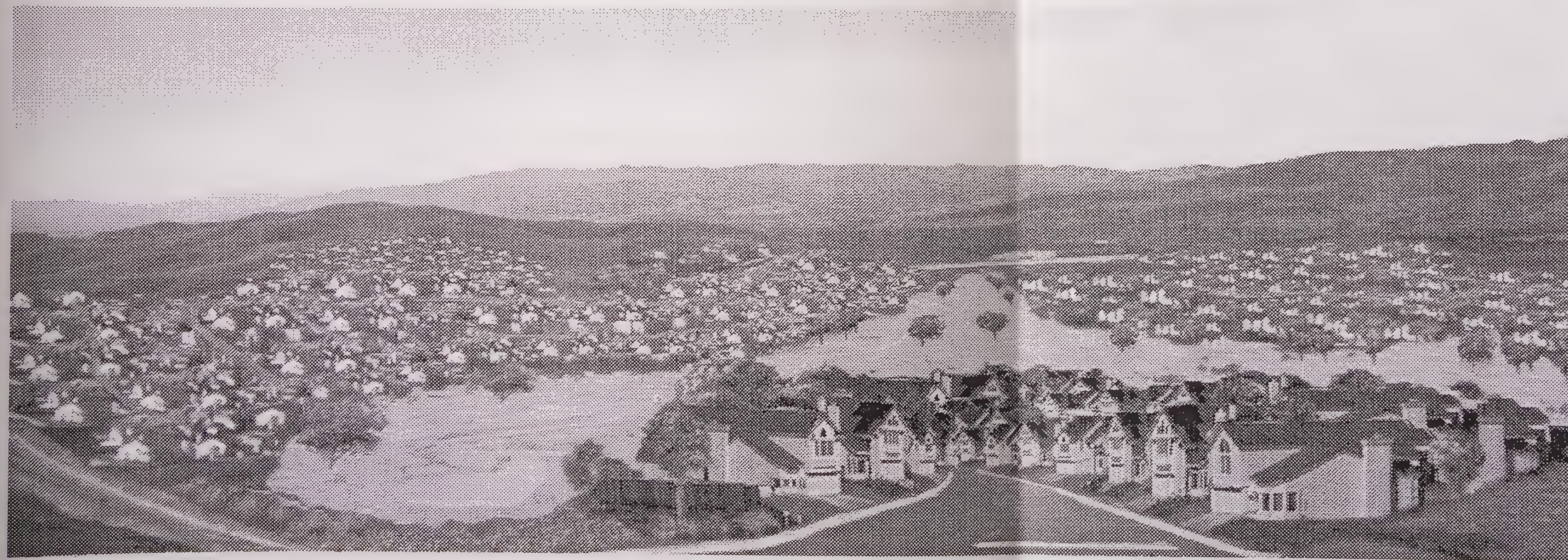
Impacts on visual quality for this project are considered significant if a project element would:

- substantially and negatively affect visual character in areas of moderate to high visual sensitivity through the introduction of visually incongruous elements in terms of scale, form, line, color, or texture (e.g., large buildings or clusters of buildings or large or brightly colored water tanks);
- substantially and negatively change existing visual character of an area or viewshed from rural, pastoral, or natural to urban, commercial, or other more developed land use pattern;



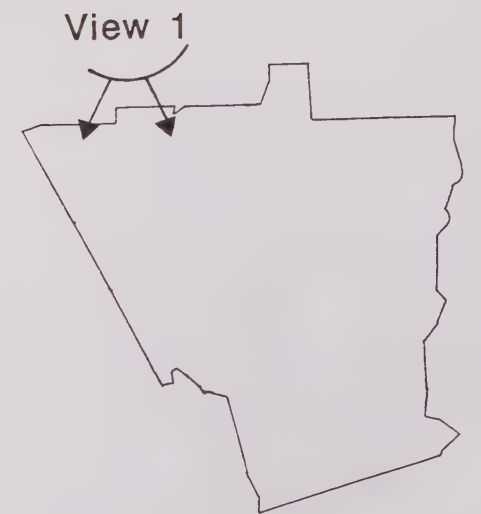


Before



After

Figure 15-6.  
View 1. Photo-realistic  
Computer Generated Images



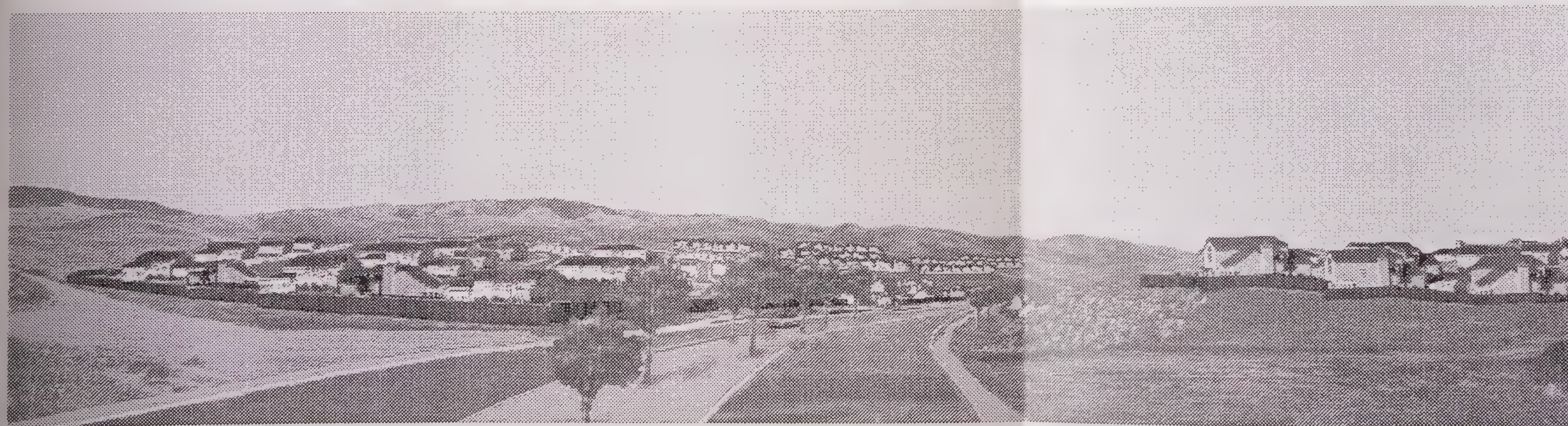








Before



After

Figure 15-7.  
View 2. Photo-realistic  
Computer Generated Images



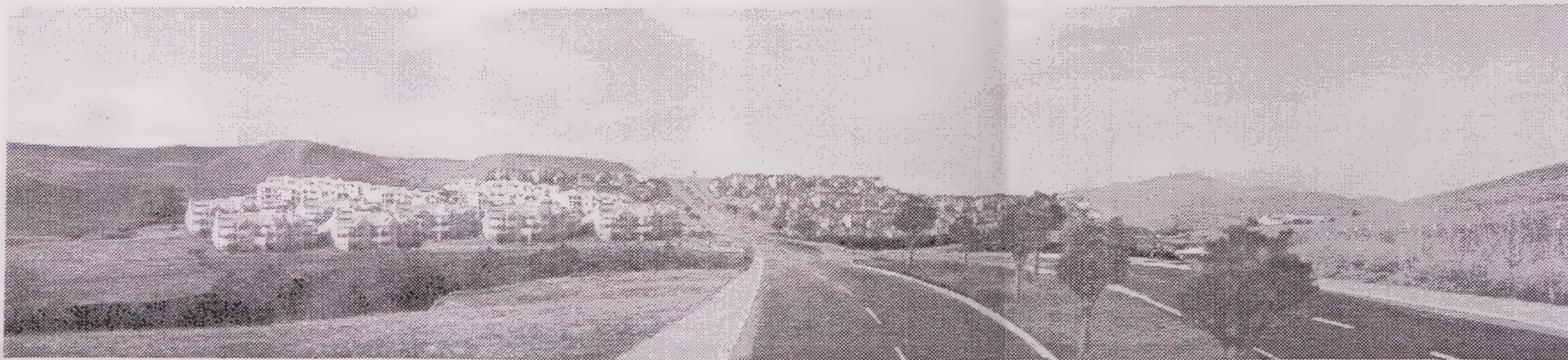






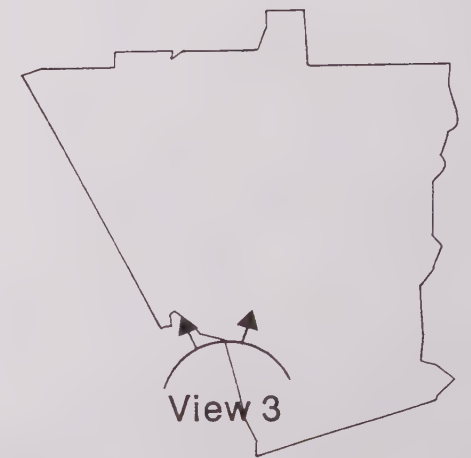


Before



After

Figure 15-8.  
View 3. Photo-realistic  
Computer Generated Images







- substantially and negatively alter existing natural landforms from their natural character and pattern to less natural, human-altered, engineered forms and patterns;
- substantially and negatively alter or existing natural vegetation patterns or remove structurally larger vegetation types (because of the rarity of larger structural vegetation in the planning area, such as oaks, cottonwoods, willows, and chaparral, virtually any loss of existing vegetation types other than annual grassland would constitute a significant visual impact);
- cover (e.g., culvert or underground) or otherwise substantially and negatively alter to a less natural form important natural drainages (e.g., Alamo Creek or the west branch of Alamo Creek);
- introduce development that substantially and negatively obscures, significantly screens, or detracts from existing high-quality views (e.g., views of scenic ridges or Mt. Diablo); or
- substantially and negatively changes the landscape's visual resources in conflict with adopted local goals and policies regarding scenic resources.

In addition, substantial and negative alterations to areas of moderate to high visual sensitivity are considered significant. Areas of moderate to high sensitivity include:

- scenic corridors designated in the County general plan;
- views from existing and proposed trails and bikeways of regional importance;
- areas at or near ridgelines or high on hillsides visible from existing and proposed roads, residences, or recreation areas;
- drainage corridors containing perennial and intermittent ("blueline") streams or important riparian vegetation; and
- important cultural (e.g., historical or rustic rural structures of local importance) or natural (e.g., rock outcrops, mature oaks, or waterfalls) features.

Where the above features are located in foreground distance zones from viewers, visual sensitivity is considered high. Where these features are located in middleground distance zones, sensitivity is considered moderate. Ridgeline areas in any distance zone are considered to have moderate to high visual sensitivity.

Significance evaluations are also based on viewer expectations and viewer positions and distances relative to the visual resources. Relative visibility of visual resources is based on an estimate of the possible number of viewers and the duration and frequency of views.



Ultimately, the determination of the significance and adverse character of a visual change is a subjective decision irrespective of the criteria used. The Project is expected to be subject to design guidelines that would ensure an attractive development. It may be determined that the Project will be substantially as attractive as the site in its current form.

### **Key Assumptions**

The following assumptions were used in assessing impacts on visual quality:

- Goals, policies, and other information documented in the County general plan accurately reflect the present desires and interests of County residents for maintaining visual quality in the County.
- Nearly the entire planning area is presently open space land, which, as defined in the County general plan and State statutes, has important regional scenic values.
- Proposed parks and trails in the area around the planning area and future trails identified as part of the project will be important areas and corridors for recreationists to view the area, and the desires and expectations of regional recreationists are for a high-quality visual experience that includes extensive and continuous areas of open space.

### **Project-Related Impacts**

#### **Impact: Change in Visual Character from Rural/Pastoral to Residential/Commercial**

Implementing the project would result in a substantial change in the appearance and visual character of the planning area. The visual character of the site would be permanently changed from rural/pastoral to residential/commercial with development of 11,000 homes; conversion of Dougherty Road from a narrow, winding, two-lane rural road to a four-lane arterial street (with possible future widening to six lanes); addition of numerous other roads; 68 acres of commercial and commercial/mixed use development; a golf course; schools; religious institutions; and other urban development.

Conversion of rural/pastoral land uses to residential/commercial land uses in the planning area would substantially alter the area's visual character by changing views with moderate to high visual sensitivity and introducing visually incongruous elements in terms of scale, form, line, color, or texture. Before-and-after views of the area in Figures 15-6, 15-7, and 15-8 indicate the extent of changes to the landscape that will alter its character from rural/pastoral to residential/commercial.

This impact is considered significant because it would result in the permanent loss of rural/pastoral visual character and the substantial modification of associated scenic vistas and scenic resource lands for a large area of the southern part of the County.

### **Mitigation Measure**

The project involves a conversion of planning area visual character from rural to suburban. It is infeasible to mitigate the loss of rural visual character and its replacement by suburban visual character. However, the specific plan includes a number of policies to ensure that the project is developed in a visually attractive manner. In addition, implementing design guidelines is expected to provide detailed measures to partially mitigate the effects of this change in visual character. These mitigation measures (listed below as mitigation measure 15.1) would partially reduce this impact, but not to a less-than-significant level because the rural/pastoral visual character of Dougherty Valley would be permanently changed. Therefore, this impact is considered significant and unavoidable.

### **Impact: Modification of a County-Designated Scenic Route**

Dougherty Road is currently designated in the County general plan as a scenic route. The scenic corridor passes through an area of open space and affords to travelers high-quality views of Mt. Diablo, surrounding hills and ridges, wildlife, and rural/pastoral lands that are diminishing throughout the County and in the region containing the planning area. The scenic routes goal for the County is to identify, preserve, and enhance scenic routes in the County.

County scenic route policies state that scenic corridors shall be maintained with the intent of protecting attractive natural qualities adjacent to various roads throughout the County. Scenic views observable from scenic routes shall be conserved, enhanced, and protected to the extent possible; the existing system of scenic routes shall be enhanced to increase the enjoyment and opportunities for scenic pleasure driving to major recreational and cultural centers throughout Contra Costa and adjacent counties. Multiple recreation use, including trails, observation points, and picnicking spots, where appropriate, shall be encouraged along scenic routes. Design flexibility shall be encouraged as one of the governing elements for aesthetic purposes in road construction within the scenic corridor. For land designated for urban use along scenic routes, planned unit developments shall be encouraged; they would provide special protection for natural topographic features, aesthetic views, vistas, hills, and prominent ridgelines at gateway sections of scenic routes that serve as entrances to regions of the County.

With implementation of the project, Dougherty Road would be re-aligned, widened, straightened, and landscaped as it passes through the planning area. Construction of the road as planned would also require removal of portions of existing hills for road cuts and substantial filling in some lower valley areas. The scenic corridor (which presently affords high-quality views to travelers of Mt. Diablo), surrounding hills and ridges, wildlife, and rural/pastoral lands would experience a substantial modification of its scenic character and



some obstruction of high to moderately sensitive scenic vistas along the Dougherty Road scenic corridor. Background views of Mt. Diablo and foreground views along the scenic route would be dominated by multistory, townhouse, single-family, and other types of housing and built elements. Before-and-after views in Figure 15-7 indicate the nature and extent of change that would occur within the scenic corridor as viewed from the south edge of the planning area. Dougherty Road would continue to serve as an important travel corridor and entrance from Alameda County to Contra Costa County.

This impact is considered significant because it would result in the modification of a county-designated scenic route and the related substantial and negative loss of open space, rural/pastoral visual character, and associated scenic vistas and scenic resource lands associated with the Dougherty Road scenic corridor.

### **Mitigation Measure**

- 15.1: The project proponents should include within the proposed design handbook (proposed by the DVSP) standards to implement the goals and policies of the DVSP to ensure that urban design, architecture, and landscape design features used in the designated scenic corridor compensate for modifications introduced by the project and enhance the visual quality of this designated scenic route. Applicable goals of the DVSP that mitigate this impact include the "Land Use" element goal to establish an attractive residential community that complements surrounding communities and responds to regional conservation and development opportunities and the "Community Design" goal to design Dougherty Valley to be attractive and function well in its natural setting (PBR 1992). The design guidelines should be reviewed and approved by the County Community Development Department prior to approval of final development plans.

Implementing mitigation measure 15.1 would reduce this impact to a less-than-significant level because project design guidelines are expected to provide standards for achieving attractive, high-quality urban development that will compensate for modifications and enhance the County-designated scenic route.

### **Impact: Substantial Alteration of Natural Landforms**

Many of the hillslopes in the planning area, particularly around the perimeter of valleys, would be terraced to create residential building sites. This would require massive grading operations and severe alteration of natural landforms. Rolling, natural hillslopes could be altered to produce abrupt, straight lines and rectilinear forms. Also, major cuts and fills would be created for road construction throughout the site. Some roads would require removal of large portions of hillslopes, filling of portions of valley areas, and deep incisions through hills. A comparison of before-and-after views in Figure 15-7 indicates the extent to which landform changes in a portion of the planning area would occur.



County scenic resource policies state that high-quality slope engineering shall be required to avoid damage to visual quality, development on open hillsides and significant ridgelines shall be restricted, extensive grading on slopes of 26% and greater shall be avoided, natural contours of the land shall be restored after grading and other land disturbances, extreme topographic modifications (e.g., removing hilltops) shall be avoided, and any new development shall be encouraged to generally conform with natural contours to avoid excessive grading.

This impact is considered significant because it could result in substantial and negative alteration of natural landforms in visible and visually sensitive portions of the planning area (e.g., the foreground distance zone for Dougherty Road scenic route).

### **Mitigation Measures**

- 15.2: The project proponents should employ appropriate landform grading techniques to maintain natural landforms and contours as much as possible. This would include designing grading to balance cut and fill within planning areas so that the amount of net export or import of earth between portions of the project is minimized. This measure should be implemented at the tentative map stage and monitored by the County.
- 15.3: The project proponents should design grading to emulate natural landforms in the immediate vicinity of the graded area. All manufactured slope edges should be rounded and slope percentages varied to create undulating cut-and-fill slopes. As specified in the DVSP, slopes should average 3:1 horizontal-to-vertical, with no cut slope exceeding 3:1 and no fill slope exceeding 2:1 in steepness. The following preliminary guidelines should be used in the project grading design:

cut:    up to 4 feet = 2:1 maximum  
         >4 feet = 3:1 maximum

fill:    up to 8 feet = 2:1 maximum  
         >8 feet = 3:1 maximum

This measure should be implemented by tentative maps and monitored by the County.

- 15.4: The project proponents should revegetate with native vegetation on all graded areas, using species and patterns designed to emulate natural native vegetation patterns of the region. The revegetation program should be designed by a qualified revegetation specialist and approved and monitored by the County as a condition of tentative maps.

These partial mitigation measures would substantially reduce this impact, but not to a less-than-significant level because the visual impacts of substantially altering natural

landforms would still be apparent and contrast with the visual character of existing natural landforms. Therefore, this impact is considered significant and unavoidable.

#### **Impact: 45% Reduction in Visually Prominent Open Space**

Development of 11,000 homes, a commercial center, and other urban land uses would amount to a 45% reduction in planning area open space. Development in the area would cause a reduction in the amount of open space visible from the Dougherty Road scenic route, surrounding recreation and open space areas (e.g., Mt. Diablo State Park, Las Trampas Regional Wilderness, and Morgan Territory Regional Preserve), and area residences and travel routes with views of the planning area. Remaining open space along the tops of scenic ridges would be made discontinuous by surrounding urban development. A comparison of before-and-after views illustrated in Figures 15-6, 15-7, and 15-8 indicate the extent to which development would fragment and obscure views of open space in the planning area. Also, the remaining open space, as described in the DVSP, would contain water reservoirs and their access roads, a power transmission line, staging areas (including parking lots and equestrian facilities), recreation trails, recreation and park facilities (including volleyball and tennis courts), and other appurtenant facilities and would include fragmented revegetated cut-and-fill slopes separating housing terraces.

Because the existing open space is highly intact, visible to many recreational and residential viewers, generally in the foreground distance zone for Dougherty Road, and low in visual absorption capability, it is considered moderately to highly sensitive.

This impact is considered significant because it would result in substantial and negative fragmentation and permanent loss of open space and the associated loss of scenic vistas and scenic resource lands for the region.

#### **Mitigation Measure**

- 15.5: The project proponents are proposing to dedicate the remaining open space areas to a qualified agency or organization to be conserved and managed to maintain remaining open space values in perpetuity.
- 15.6: The County Community Development Department should include within the proposed design handbook (proposed by the DVSP) standards to implement the goals and policies of the DVSP to ensure that facility siting, urban design, architecture, and landscape design features used in the planning area help visually absorb structures and other built features introduced by the project. Applicable goals of the DVSP that help mitigate this impact include the "Land Use" element goal to establish an attractive residential community that complements surrounding communities and responds to regional conservation and development opportunities and the "Community Design" goal to design Dougherty Valley to be attractive and function well in its natural setting (PBR 1992). The design guidelines should be reviewed and approved by the County

Community Development Department prior to approval of Final Development Plans.

This action would substantially reduce this impact, but not to a less-than-significant level because permanent loss and fragmentation of a substantial amount of visually prominent open space would still occur. Therefore, this impact is considered significant and unavoidable.

**Impact: Introduction of Structures and Other Built Features that May Reduce Visual Quality**

The visual absorption capability of most of the planning area (i.e., the capability of the landscape to absorb visual intrusions) is very low due to the landscape's open character. Most structures, manufactured slopes, and other built features introduced into the planning area would be highly visible in the landscape; contrast with existing visual character in form, line, color, texture, or scale; and not be easily visually absorbed into the landscape. Visual quality would be reduced by introducing forms that contrast highly with the landscape's natural forms, colors, lines, and textures. Some manufactured slopes may be 50 to 60 feet in height with terraces. Figures 15-5, 15-6, and 15-7 illustrate the introduction of built forms into the landscape that contrast with its natural features.

This impact is considered significant because introducing structures, manufactured slopes, and other built features in the landscape substantially changes the character of the area. The following mitigation measures partially mitigate this impact.

**Mitigation Measures**

- 15.7: The project proponents should screen residential and commercial development and other built facilities with berms and native vegetation where these features will be visible from entrances into the planning area, recreation areas and features (e.g., trails), and scenic features (e.g., scenic routes and important viewing locations).
- 15.8: The project proponents should include within the design handbook specified in the DVSP design standards for structures and other built features to address:
  - land use mix, character, and intensity to create a strong sense of identity and place;
  - lot sizes, setback and buffer requirements, building height, massing, character, landscape transition and planting;
  - architectural treatment standards for fencing, walls, parking, entry, median and street frontage areas;and



- location and design of community facilities, including schools, fire stations, and park facilities.
- 15.9: The project proponents should restore native habitat types, especially wetland, riparian, and oak woodland types, for key areas within the scenic corridor to create greater diversity of high-quality visual resources in the planning area.
- 15.10: The project proponents should ensure that only earthtone colors be used for all buildings, fencing, and other structures visible from adjacent residences, gateways, important viewing locations, recreation areas and features, and other important locations both on and off the planning area.
- 15.11: The project proponents should design any signs, other than required traffic signs, to be less than 4 feet in height and 12 feet in width and constructed of native-appearing materials (e.g., colored and textured concrete, native stone, or wood) and use only earthtone or subdued colors.
- 15.12: The project proponents should set back all houses, garages, storage units, and other structures of more than 6 feet in height a minimum of 25 feet from the center of the rounded edge of cut or fill slopes where the structures are to be located above the slope.
- 15.13: The project proponents should limit the height of all structures to 30 feet or less for all housing and commercial development on hillsides and terraces and 15 feet or less for areas between 25 and 40 feet from the center of the rounded edge of cut or fill slopes where the structures are to be located above the slope.
- 15.14: The project proponents should ensure that no buildings or structures (including fencing walls or water tanks) interrupt the continuous unbroken ridgelines within the planning area when viewed from gateway areas, recreation areas, recreation features, residences, or other important onsite or offsite locations.
- 15.15: The project proponents should design erosion control and drainage features to conform with the natural topography, vegetative patterns, and colors of the area and screen these features with berms and native vegetation.

Implementing mitigation measures 15.7-15.15 would reduce this impact to a less-than-significant level because visual impacts of introducing structured and other built features into the landscape would be reduced to a level whereby their form, line, color, texture, and scale, although evident, would remain visually subordinate to the character of the landscape.

### **Impact: Siting of Infrastructure Elements and Other Vertical Elements that Reduce Visual Quality**

Because of the landscape's low visual absorption capability in most of the planning area, most infrastructure (e.g., water storage tanks and transmission facilities) and other vertical elements introduced into the area would be highly visible in the landscape; contrast with existing visual character in form, line, color, texture, or scale; and not easily be visually absorbed into the landscape. Visual quality would be reduced by introducing forms that contrast highly with the landscape's natural forms, colors, lines, and textures. The existing water tank to the west of Dougherty Road near the south boundary of the planning area (Figure 15-3) contrasts with its surroundings in terms of form, line, and color, is highly visible within the scenic corridor, and is not visually absorbed as part of the landscape's character. The siting and design of infrastructure elements such as this water tank should be carefully evaluated to minimize visual impacts.

This impact is considered significant because siting of infrastructure and other vertical elements in the area substantially and negatively reduce the visual quality of the planning area.

### **Mitigation Measures**

- 15.16: The project proponents should site facilities in locations of low visual sensitivity and below ridgelines so that they do not visually interrupt the continuous unbroken lines of ridge tops when viewed from important locations both onsite and offsite.
- 15.17: The project proponents should site facilities such as water storage tanks by minimizing sidewall exposure through methods such as full or partial burial, constructing berms, planting native vegetative screens, and using earthtone colors that blend closely with the natural surroundings.
- 15.18: The project proponents should minimize visibility and visual impacts of access and maintenance roads by minimizing sidecast and cut-and-fill requirements, revegetating disturbed areas with native vegetation, siting roads and varying their width to fit closely with the natural topography, designing road portions located high on hillsides to be 4% outsloping with rolling dips and road portions located low on hillsides to be insloping with ditches and culverts.
- 15.19: The project proponents should design any artificial water features to be small in scale and natural appearing.

Implementing mitigation measures 15.16-15.19 would reduce this impact to a less-than-significant level because siting of infrastructure and other vertical elements in the area would occur in a manner whereby their form, line, color, texture, and scale, although evident, would remain visually subordinate to the character of the landscape.

### **Impact: Roads, Road Crossings, and Improvements in Creek Corridors**

Creek corridors are of high visual sensitivity because they are highly visible elements in the landscape; focal points of visual attention; and characteristically exhibit a high degree of visual interest and diversity in form, line, color, and texture. They also attract wildlife (a high-quality visual resource in the area) and provide a strong visual edge that draws viewer attention. Creek crossings are particularly visually sensitive, and long transverse crossings that fill drainages degrade the value of creeks.

This impact is considered significant because constructing roads, road crossings, and improvements in creek corridors may further reduce the visual quality of creek corridors during construction; however, the existing creeks are presently degraded in terms of visual quality.

#### **Mitigation Measures**

- 15.20: The project proponents should provide a setback for all roads in creek corridors and establish and maintain a native vegetation buffer in the setback area between the creek and road. The setback will vary in width depending on creek size and depth based on guidelines contained in the DVSP.
- 15.21: The project proponents should retain and revegetate with native vegetation existing natural drainages where feasible. Creek crossings should be perpendicular and use bridges where feasible to avoid filling creek channels. The revegetation program should be designed by a qualified revegetation specialist and approved and monitored by the County as a condition of tentative maps.

Implementing mitigation measures 15.20 and 15.21 would reduce this impact to a less-than-significant level because construction of roads and road improvements in creek corridors would be performed in a manner whereby their form, line, color, texture, and scale, although evident, would remain visually subordinate to the character of the landscape.

### **Impact: Introduction of Recreation Features and Elements that Reduce Visual Quality**

Although recreation features are generally considered positive visual elements, some structures and other built features and elements for recreation development can contrast with and reduce visual quality in sensitive visual areas. Also, the presence of large numbers of people may reduce visual quality for some viewers in important and sensitive visual areas. The presence of buildings, tennis courts, volleyball courts, equestrian facilities, parking lots, active play facilities for children, and other recreation features and elements in visually sensitive areas such as creek corridors and other open space areas could reduce visual quality in those areas.



This impact is considered significant because introducing recreation features and elements into the area could contrast in form, line, color, texture, and scale with the landscape character.

### **Mitigation Measures**

- 15.22: The project proponents should minimize grading and alteration of natural landform, creeks, and drainage elements for the golf course and other recreation areas, staging areas, and trails.
- 15.23: The project proponents should establish a native vegetation buffer of a minimum width of 50 feet between creek centerlines and recreation features (e.g., volleyball courts, tennis courts, and other active recreation features) for Alamo Creek and the west branch of Alamo Creek throughout the planning area. Also, bicycle trails should not run closer than 50 feet to creek centerlines except near crossing points or observation or interpretive areas.
- 15.24: The project proponents should design the golf course to maintain all drainages as open drainages and use only small bridges and short culverts for pedestrian, cart path, and maintenance-vehicle crossings.
- 15.25: The project proponents should stabilize creek banks and make other improvements in recreation areas using only native-appearing construction materials (e.g., timber, rocks, and textured, earth-tone concrete) and native vegetation where feasible.
- 15.26: The project proponents should site recreation trails and other similar features along one bank of the creek corridor and retain the other in a more natural condition.

Implementing mitigation measures 15.22-15.26 would reduce this impact to a less-than-significant level because introduction of recreation features and elements into the area would be accomplished in a manner whereby their form, line, color, texture, and scale, although evident, would remain visually subordinate to the character of the landscape.

### **Impact: Removal of Visually Important Vegetation**

Vegetation other than annual grasslands in the planning area is rare. Any large vegetation, such as trees and shrubs, is considered a visually sensitive resource.

This impact is considered less than significant because little or no visually prominent vegetation is expected to be removed. The project would enhance some creek corridor areas through enhancement and revegetation plans that are proposed in the DVSP.

## **Mitigation Measures**

No mitigation is required.

### **Impact: Visual Impacts of Fencing, Fire Breaks, and Fire Roads**

Because of the landscape's low visual absorption capability in most of the planning area, fencing, firebreaks, and fire roads introduced into the landscape would be highly visible; contrast with existing visual character in form, line, color, texture, or scale; and not easily be visually absorbed into the landscape. Visual quality would be reduced by introducing forms that contrast highly with the landscape's natural forms, colors, lines, and textures.

This impact is considered significant because visual impacts of fencing, fire breaks, and fire roads could contrast in form, line, and color with the landscape's character.

## **Mitigation Measures**

- 15.18: This measure is described above.
- 15.27: The project proponents should locate fire roads in debris catchment basin areas or on the tops of buttress fill areas, as feasible, to further reduce fire road visibility.
- 15.28: The project proponents should use low fencing of welded wire mesh or barbed wire strand no higher than necessary to control stock and domestic animal access.

Implementing mitigation measures 15.18, 15.27, and 15.28 would reduce this impact to a less-than-significant level because construction of fencing, fire breaks, and fire roads would be accomplished in a manner whereby their form, line, and color, although evident, would remain visually subordinate to the character of the landscape.

### **Impact: Introduction of Stormwater Detention Facilities**

Stormwater detention facilities could create visual impacts on sensitive visual areas unless designed to fit the natural visual character of the landscape.

This impact is considered significant because stormwater detention facilities could contrast in form, line, color, texture, and scale with the landscape's character.

## **Mitigation Measure**

- 15.29: The project proponents should design stormwater detention facilities to fit the area's natural landform patterns and be curvilinear in form and with undulating sideslopes averaging 3:1 or less in steepness, use natural-appearing materials and colors for drainage facility structures, and screen all drainage facility structures from important viewpoints using native vegetation.

Implementing mitigation measure 15.29 would reduce this impact to a less-than-significant level because introducing stormwater detention facilities in the area would be accomplished in a manner whereby their form, line, color, texture, and scale, although evident, would remain visually subordinate to the character of the landscape.

## **Impact: Light and Glare on Residents Both Onsite and Offsite**

Because of its lack of urban development, the planning area provides little or no light or glare to affect surrounding residents. Developing the planning area would produce significant amounts of light and glare and could have adverse effects on residents and others both on and off the site. Street lights, lighted play areas, and lights from dense development areas and commercial areas could contribute to light and glare. Large areas of light-colored materials and paved or metal surfaces also could contribute to glare impacts, for both planning area residents and nearby residents.

This impact is considered significant because light and glare could affect area residents both onsite and offsite and have a substantial, negative aesthetic effect on area residents, as described in Appendix G of the State CEQA Guidelines.

## **Mitigation Measure**

- 15.30: The project proponents should design lighting for concentrated night-lit areas, such as commercial areas, sports areas, community centers, gathering areas, and parking lots to minimize their offsite visibility by using downward-oriented high-pressure sodium lights and physical screening materials subject to approval of the Community Development Department prior to issuance of site building permits.

Implementing mitigation measure 15.30 would reduce this impact to a less-than-significant level because negative aesthetic effects resulting from increased light and glare would be minimized to meet performance standards of the County.



### **Impact: Construction of Windemere Parkway Extension from Dougherty Valley East to Camino Tassajara Road**

Windemere Parkway is planned as a four lane road extending east of Dougherty Valley to provide access to Camino Tassajara Road and Alameda County to the south. The road will cross Tassajara Ridge, which is designed as a scenic ridge in the County General Plan and the DVSP. According to the County plan policies, public facilities are allowed to transect designated scenic ridges if no other feasible alternatives exist. High-quality engineering practices are required of such facilities in an attempt to minimize this impact. The road is proposed for construction at an 8% maximum grade to take into consideration public safety and to reduce the amount of grading required.

The Windemere Parkway extension will also need to cross Tassajara Creek and will require a large bridge to span that creek. It will join Camino Tassajara Road, which also a County-designated scenic route.

This impact is considered significant because the roadway will cross the Tassajara Ridge, which is a highly visible designated scenic resource, and cross Tassajara Creek.

### **Mitigation Measures**

- 15.2-15.4: These mitigation measures are described above.
- 15.31: The project proponents should minimize the extent of grading required by designing Windemere Parkway extension to use the maximum permitted grades and the minimum permitted road cross-sections that would still meet County standards for public safety. The design should incorporate innovative techniques to retain, contour grade, drain, and revegetate road cuts and fills to minimize the overall visibility of the road when viewed from the designated Camino Tassajara scenic route. The roadway design should be approved by the Public Works Department and Community Development Department.
- 15.32: The project proponents should design the Windemere Parkway crossing of Tassajara Creek as bridge structure in accordance with the design goals of the DVSP for on-site infrastructure. The bridge should be designed to avoid physical intrusion into the channel area. The design should incorporate innovative techniques to retain, contour grade, drain, and revegetate the bridge abutment areas and provide a visually appropriate transition to the designated Camino Tassajara scenic route. The bridge and transition design should be approved by the Public Works Department and Community Development Department.

Implementing mitigation measures 15.2-15.4, 15.31, and 15.32 would partially reduce this impact, but not to a less-than-significant level because the road cut will cause a scar over this scenic ridge. This impact is considered significant and unavoidable.

### **Impact: Views from Adjacent Existing and Approved Residential Areas**

The project would be visible from approximately 200 existing and approved residences that are located on the perimeter of the planning area (Figure 15-5). The potential for land use incompatibilities between these adjacent land uses and DVSP land uses has been identified in Chapter 4 "Land Use" and shown in Figure 4-9. Some of these adjacent residential developments have not yet been fully built, and the potential exists that future residents would be unaware of the DVSP or its direct impacts on existing views from these residential areas until construction was initiated.

This impact is considered significant because the project would introduce development that substantially and negatively obscures, significantly screens, or detracts from existing high-quality views. Measures to minimize this impact have been included in the DVSP and mitigation measures 15-1 through 15-29, but these measures would only partially reduce this impact. In addition, the following mitigation measure would address the full disclosure of this condition.

#### **Mitigation Measure**

- 15.33: The County should notify property owners and tenants adjacent to the boundary of the planning area (as shown in Figure 15-5) of all discretionary applications where the new homes will be visible from these adjacent areas where the visible impact extends beyond the 300-foot legal notice requirements. The project proponents should provide an informational brochure that fully discloses the anticipated visual impacts of their plans, which should be distributed to interested individuals by the County.

Implementing mitigation measures 15-1 through 15-30 and 15-33 would partially reduce this impact, but not to less-than-significant levels. This impact is considered significant and unavoidable.

### **Cumulative Impacts**

#### **Impact: Cumulative Regional Loss of Rural/Pastoral Visual Character, Reduced Views of Open Space, and Loss of Scenic Views in the Region**

Developing the planning area and other project areas in the Tri-Valley region would have a cumulative effect on the region's visual character and quality. This cumulative effect would be evident through time as reduced regional open space and loss of regional rural/pastoral visual character and scenic views. This cumulative impact would be most evident to people driving or bicycling through the area, living in or near the region, or visiting nearby recreation areas and preserves, including Mt. Diablo State Park and the nearby East Bay Regional Parks District parks and reserves.

This cumulative impact is considered significant because it would substantially and negatively reduce regional open space and cause permanent loss of regional rural/pastoral visual character and scenic views.

### **Mitigation Measures**

- 15.1 through 15.32: These measures are described above.

Implementing mitigation measures 15.1 through 15.32 would reduce this impact, but not to a less-than-significant level because the project would still contribute to a reduction in regional open space and a permanent loss of regional rural/pastoral visual character and scenic views.



## **Chapter 16. Alternatives to the Proposed Project**

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The State CEQA Guidelines state that an EIR shall discuss a "range of reasonable alternatives to the project, or to this location of the project, which could feasibly attain the basic objectives of the project". The alternatives evaluated should be focused on "eliminating any significant adverse effects, or reducing them to a level of insignificance," even if doing so would "impede to some degree the attainment of the project objectives, or would be more costly". CEQA requires discussion of the No Project Alternative (Section 15126d).

The alternatives to this project are described in Chapter 3, "Project Description". They were selected to provide a reasonable range of alternatives for development of the planning area or another site in the vicinity. The alternatives selected for analysis represent a range of approaches to a development project in the planning area that vary the land use mix, intensity, distribution, and residential density. All of the alternatives would generally attain the project objectives listed in the project description (Chapter 3), but to varying degrees. These alternatives were also selected to reduce (or eliminate) the significant and unavoidable environmental impacts identified in Chapters 4-15 and summarized in Chapter 2, "Summary". In addition, an alternative location was selected in the vicinity of the planning area that could physically accommodate the DVSP, attain the project objectives, and reduce significant and unavoidable impacts.

### **DOUGHERTY VALLEY PLANNING AREA ALTERNATIVES**

#### **No-Project Alternative**

The No-Project Alternative would leave the planning area undeveloped. The land would remain under County jurisdiction, with the Camp Parks portion of the planning area under U.S. Army jurisdiction. The No-Project Alternative is described in more detail in Chapter 3, "Project Description".

The private ranch land is expected to continue to be leased and used for grazing and dryland farming activities for the foreseeable future. The Camp Parks land would continue to be used for military training activities and its use could be intensified if certain operations at the San Francisco Presidio area were transferred to this facility.

The planning area would probably remain essentially unchanged physically, and the environmental setting elements described in Chapters 4-15 would continue to characterize the site. However, continued adverse environmental impacts, such as soil erosion, creek

incising, and vegetation loss associated with current agricultural management practices and the continued deterioration of the ranch buildings could also be expected.

Cumulative impacts of development throughout the Tri-Valley region would be expected to physically isolate the planning area from larger undeveloped areas to the east and result in further deterioration of the vegetation and wildlife on the site. The surrounding regional growth could also be expected to result in significant adverse circulation and air quality impacts in the planning area.

The planning area would remain available for future development, either within the County or by annexation to an adjacent city. Alternatively, the planning area could be available for future preservation and management as a park or open space, if such a use were proposed.

The No-Project Alternative is considered the environmentally superior alternative. It was not chosen because it does not achieve the project objectives.

### **Lower Density Alternative**

#### **Project Description**

The Lower Density Alternative would involve developing a maximum of 5,500 dwelling units on 2,254 residential acres within the Dougherty Valley planning area (Table 3-6). A proposed land use scenario (Figure 3-13) would develop the planning area at much lower residential densities than the proposed project around the perimeter and somewhat lower or essentially the same residential densities in the central part of the planning area (Figure 3-15).

Development of the site under the Lower Density Alternative would affect the same physical area as the DVSP. However, it would result in 52% less residential units and a proportionate reduction in project population and average daily trips (ADTs).

The Lower Density Alternative is described in more detail in Chapter 3, "Project Description".

#### **Evaluation of the Lower Density Alternative**

The Lower Density Alternative was evaluated for its impacts using the environmental setting information contained in Chapters 4-15. Anticipated impacts are identified in relationship to those identified in the DVSP impact analysis, which should be referenced in conjunction with this evaluation.

In general, the Lower Density Alternative would have many of the same significant physical impacts as the proposed project for most issues, because it has the same physical



extent as the project. It would have substantially less significant impacts on public services and utilities, circulation, air quality, and noise based on its reduced number of residential units and a proportionate reduction in per capita services demand and vehicle trips generated.

**Land Use.** The land uses associated with the Lower Density Alternative and the proposed project differ in the total maximum number of residential units that would be constructed in the planning area, the type and density of the residential units, and their distribution. All other land uses are proposed to be the same.

The land use impacts associated with conversion of the planning area from agricultural land to urban uses and open space would be the same because the physical area of urbanization would be the same. Land use relationship incompatibility impacts with Camp Parks would be slightly reduced under the Lower Density Alternative because of the lower number of residential units that would be located adjacent to the base.

The Lower Density Alternative would be expected to have many of the same significant land use impacts as the proposed project. Significant land use compatibility impacts would be reduced to less than significant or would be entirely eliminated by this alternative.

**Public Services and Utilities.** The Lower Density Alternative would reduce the maximum number of dwelling units by about 52% compared to the maximum number associated with the proposed project. This would be expected to reduce the overall demand for most public services, such as police and fire services, schools, and parks by the same amount. However, the public facilities infrastructure needed to service the Lower Density Alternative would be essentially the same because it would have to extend to the same areas and meet minimum design standards. This would mean that certain economies of scale that might be realized under the project alternative may not be realized under the Lower Density Alternative. Although the per capita demand for water, wastewater, and recycled water would be reduced, the demand factors associated with more single-family residential development would increase and tend to lessen this reduction. In addition, the physical placement and costs associated with the delivery infrastructure would remain much the same. Construction-related impacts would be essentially the same as those of the proposed project because the extent and duration of construction activities are expected to be the same regardless of the number of units ultimately constructed.

The Lower Density Alternative would therefore be expected to have slightly less significant public services impacts and essentially the same public facilities impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Circulation.** The reduced maximum number of dwelling units would be expected to reduce the overall ADTs under the Lower Density Alternative by over 50%. The overall trip generation rate for this alternative would be slightly lower because it would generate essentially the same number of multifamily residences and substantially less single-family residences. Because the average size of the single-family residences and the proportionate mix of single-family to multifamily units would be different, potential reductions in total



ADTs could be heightened. The net effect is expected to be substantially lower overall ADTs under the Lower Density Alternative, distributed in the same manner as those of the proposed project. This reduction would translate into intersection and roadway capacity improvements in the project vicinity in the 2010 with-project scenario. However, many of the mitigation measures to improve area circulation infrastructure would be the same because background growth would require essentially the same kinds of measures, and only the proportionate share attributed directly to the project would be reduced. Secondary impacts associated with these improvements would remain the same.

The Lower Density Alternative would therefore be expected to have substantially less significant impacts on circulation than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Air Quality.** Reduced ADTs would translate into reduced vehicle emissions and substantially less adverse air quality impacts under the Lower Density Alternative. Although direct impacts are expected to be partially mitigated under this alternative and the proposed project, both would contribute to significant direct and cumulative impacts. Construction-related air quality impacts would be essentially the same because the extent and duration of construction activities are expected to be the same regardless of the number of units ultimately constructed.

The Lower Density Alternative would therefore be expected to have less significant overall air quality impacts than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Noise.** The reduction in the number of residential units associated with the Lower Density Alternative would translate to lower noise levels associated with reduced vehicular traffic volumes on roadways throughout the planning area. However, these reduced traffic noise levels would move the 60-dB- $L_{dn}$  contours only marginally, and the number of offsite noise-sensitive residential units exposed to significant traffic noise would be reduced only slightly. Although direct impacts both onsite and offsite are expected to be mitigated under this alternative and the proposed project, both would contribute to significant cumulative impacts. Because the Camp Parks training uses are assumed to continue, the noise generated by those uses would be the same. Construction-related noise would essentially be the same because the extent and duration of noise-generating activities are expected to be the same regardless of the number of units ultimately constructed.

The Lower Density Alternative would therefore be expected to have somewhat less significant noise impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Soils and Geology.** The Lower Density Alternative would not be expected to reduce the significance of soils and geology impacts because its extent would be the same as that of the proposed project. The same mass grading approach is expected to be used, resulting in the same scale of topographic alterations and potential for increased soil erosion rates. The same level of hazard associated with landslides, slope failures, liquefaction, and shrink-swell would be expected and the same mitigation measures would be recommended. In

addition, the planning area would be exposed to the same seismic groundshaking intensity. Finally, each alternative would result in the same amount of grading in hillsides with slopes of 26% and greater.

The Lower Density Alternative would therefore be expected to have essentially the same significant soils and geology impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Hydrology and Water Quality.** The Lower Density Alternative would result in the same amount of ground-surface disturbance within the drainage areas in the planning area as would the proposed project. The amount of infiltration would be slightly reduced under the Lower Density Alternative because of the larger lot sizes in relationship to impermeable surface area. This would reduce runoff slightly from that expected in the proposed project. Surface drainage facilities would be expected to maintain offsite flows in Alamo and Coyote Creeks at the essentially the same or somewhat lower levels than under the proposed project.

Water quality impacts associated with development of the planning area would essentially be the same because the disturbed soil areas and soil erosion hazard would be the same. Water quality impacts associated with urban runoff would be expected to be reduced only slightly under the Lower Density Alternative.

The Lower Density Alternative would therefore be expected to have essentially the same significant hydrology and water quality impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Biological Resources.** The impacts on biological resources associated with the Lower Density Alternative would essentially be the same as those associated with the proposed project because both involve the same area of physical impact.

The Lower Density Alternative would be expected to have essentially the same significant impacts on biological resources as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Cultural Resources.** The Lower Density Alternative would not be expected to reduce the cultural resource impacts associated with the proposed project because the physical extent of the Lower Density Alternative would be the same as that of the proposed project. The proposed community park and creek corridor areas (where the identified cultural resources of the ranch headquarters and the other abandoned ranch site are located) would remain the same. The land uses proposed for Camp Parks are also the same and would therefore potentially affect the prehistoric and historic resources identified on that portion of the planning area. The extent of project-related grading and subsequent restoration activities would also remain the same, with a similar potential for discovery of buried archeological resources.



The Lower Density Alternative would therefore be expected to have essentially the same significant cultural resource impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Electromagnetic Fields.** Although the residential land uses proposed adjacent to the 230-kV electric transmission lines would be similar under both the Lower Density Alternative and the proposed project, the Lower Density Alternative could be expected to be significantly less single-family units being constructed throughout the planning area. This could allow for a significant reduction in the number of residential units built adjacent to the electric transmission line rights-of-way, thereby reducing the number of residents that would be potentially exposed to elevated EMF levels. The Lower Density Alternative would be expected to result in less residents being exposed to elevated EMF levels and would represent a greater level of "prudent avoidance".

This alternative would therefore have less significant impacts associated with the need to disclose potential EMF exposure than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Population and Housing.** Under the Lower Density Alternative, the number of housing units and their density would be reduced by 52%, thereby reducing the number of affordable units that would be provided. Population would be reduced by an even greater extent due to the relative reduction in lower density housing units in relationship to the constant amount of higher density housing. This alternative would have a much smaller effect in balancing the regional jobs/housing ratio.

The Lower Density Alternative would therefore be expected to have less beneficial impacts than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Aesthetics and Visual Quality.** Although the overall number of units and residential density would be substantially lower under the Lower Density Alternative, the overall visual impacts would be essentially the same because the extent and character of the development-related visual impacts would remain essentially the same. Both alternatives would transform existing views onto the site and from Dougherty Road from rural to urban over the same portions of the planning area. The scale of landform alterations due to grading and subsequent restoration and landscaping would be essentially the same under the Lower Density Alternative and the proposed project. The lower residential densities and larger lots of the Lower Density Alternative over the proposed project would substantially reduce the perceived negative visual impacts for viewers from existing and developing residences.

The Lower Density Alternative would therefore be expected to have essentially the same significant aesthetic and visual quality impacts as the proposed project. Significant visual impacts associated with views onto the site would be reduced to less than significant or would be entirely eliminated by this alternative.

**Growth Inducement.** As discussed under "Public Services and Utilities" above, the Lower Density Alternative would require essentially the same infrastructure extensions as



the proposed project. These extensions would be extended in the same way and would therefore result in the same growth inducement as that associated with the proposed project.

The Lower Density Alternative would therefore be expected to have essentially the same significant growth-inducing impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative. The Lower Density Alternative is not preferred because it does not fully achieve project objectives, and it would have less beneficial impacts with regard to population and housing.

## **Moderate Density Alternative**

### **Project Description**

The Moderate Density Alternative would involve developing a maximum of 9,500 dwelling units on 2,254 residential acres within the Dougherty Valley planning area (Table 3-6). A proposed land use scenario (Figure 3-13) would develop the planning area at generally lower residential densities than the proposed project around the perimeter, with essentially the same residential densities in the central part of the planning area.

Development of the site under the Moderate Density Alternative would affect the same physical area as the DVSP. However, it would result in 14% less residential units and a proportionate reduction in project population and average daily trips (ADTs).

The Moderate Density Alternative is described in more detail in Chapter 3, "Project Description".

### **Evaluation of the Moderate Density Alternative**

The Moderate Density Alternative was evaluated for its impacts using the environmental setting information contained in Chapters 4-15. Anticipated impacts are identified in relationship to those identified in the DVSP impact analysis, which should be referenced in conjunction with this evaluation.

In general, the Moderate Density Alternative would have essentially the same significant impacts as the proposed project for most issues. It would have somewhat less significant impacts on public services and utilities, circulation, air quality, and noise based on its somewhat reduced development density.

**Land Use.** The land uses associated with the Moderate Density Alternative and the proposed project differ only in the total maximum number of residential units that would be constructed in the planning area and the number of units that would be constructed in any given area. All other land uses are proposed to be the same.

The land use impacts associated with agricultural land conversion would be the same because the physical area of urbanization would be the same. The land use relationship between existing and proposed adjacent residential land uses and the lower density land uses proposed by the DVSP for the perimeter of the planning area would be substantially improved. However, compatibility with Camp Parks would be only slightly reduced under the Moderate Density Alternative because of the marginal decrease in the number of residents that would be located adjacent to the base.

The Moderate Density Alternative would be expected to have many of the same significant land use impacts as the proposed project. But, the land use compatibility impacts of the project would be substantially mitigated by this alternative. No significant impacts would be entirely eliminated by this alternative.

**Public Services and Utilities.** The Moderate Density Alternative would reduce the maximum number of dwelling units to about 14% less than the maximum number associated with the proposed project. This would be expected to reduce the overall demand for most public services, such as police and fire services, schools, and parks, in a generally proportional manner. However, the public facilities infrastructure needed to service the Moderate Density Alternative would essentially be the same; therefore, the economies of scale that might be realized under the project alternative may not be as great under the Moderate Density Alternative. Although water, wastewater, and recycled water demand would be reduced, demand factors associated with more single-family residential development would increase to offset this reduction. In addition, the physical placement and costs associated with the delivery infrastructure would remain essentially the same. Construction-related impacts would be essentially the same as those of the proposed project because the extent and duration of construction activities are expected to be the same regardless of the number of units ultimately constructed.

The Moderate Density Alternative would therefore be expected to have slightly less significant public services impacts and essentially the same public facilities impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Circulation.** The reduced maximum number of dwelling units would be expected to reduce the overall ADTs under the Moderate Density Alternative. However, the overall trip generation rate for this alternative would be slightly higher because single-family residences tend to generate more daily trips than multifamily residences. Because the average size of the single-family residences and the proportionate mix of single-family to multifamily units would be different, potential reductions in total ADTs could be dampened. The net effect is expected to be slightly lower overall ADTs under the Moderate Density Alternative, distributed in the same manner as those of the proposed project. This reduction would translate into somewhat greater intersection and roadway capacities in the project vicinity in the 2010 with-project scenario. However, the mitigation measures to improve area circulation infrastructure would be essentially the same because background growth would require essentially the same kinds of measures, and only the proportionate share attributed directly to the project would be reduced. Secondary impacts associated with these improvements would remain the same.



The Moderate Density Alternative would therefore be expected to have slightly less significant impacts on circulation than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Air Quality.** Reduced ADTs would translate into reduced vehicle emissions and less adverse air quality impacts under the Lower Density Alternative. Although direct impacts are expected to be partially mitigated under this alternative and the proposed project, both would contribute to significant direct and cumulative impacts. Construction-related air quality impacts would be essentially the same because the extent and duration of construction activities are expected to be the same regardless of the number of units ultimately constructed.

The Moderate Density Alternative would therefore be expected to have slightly less significant air quality impacts than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Noise.** The reduction in the number of residential units associated with the Moderate Density Alternative would translate to slightly lower noise levels associated with reduced vehicular traffic volumes on roadways throughout the planning area. However, because these reduced traffic noise levels would move the 60-dB- $L_{dn}$  contours only slightly, the number of offsite noise-sensitive residential units exposed to significant traffic noise would remain essentially the same. Although direct impacts both onsite and offsite are expected to be mitigated under this alternative and the proposed project, both would contribute to significant cumulative impacts. Because the Camp Parks training uses are assumed to continue, the noise generated by those uses would be the same. Construction-related noise would essentially be the same because the extent and duration of noise-generating activities are expected to be the same regardless of the number of units ultimately constructed.

The Moderate Density Alternative would therefore be expected to have slightly less or essentially the same significant noise impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Soils and Geology.** The Moderate Density Alternative would not be expected to reduce the significance of soils and geology impacts because its extent would be the same as that of the proposed project. The same mass grading approach would be used, resulting in the same scale of topographic alterations and potential for increased soil erosion rates. The same level of hazard associated with landslides, slope failures, liquefaction, and shrink-swell would be expected and the same mitigation measures would be recommended. In addition, the planning area would be exposed to the same seismic groundshaking intensity. Finally, each alternative would result in the same amount of grading in hillsides with slopes of 26% and greater and would therefore have the same potential for inconsistency with the County general plan.

The Moderate Density Alternative would therefore be expected to have essentially the same significant soils and geology impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.



**Hydrology and Water Quality.** The Moderate Density Alternative would result in the same amount of ground-surface disturbance within the drainage areas in the planning area as the proposed project. The amount of infiltration would be slightly reduced under the Moderate Density Alternative because of the larger lot sizes in relationship to impermeable surface area. This would reduce runoff slightly from that expected in the proposed project. Surface drainage facilities would be expected to maintain offsite flows in Alamo and Coyote Creeks at the same or lower levels than under the proposed project.

Water quality impacts associated with development of the planning area would be essentially the same because the disturbed soil areas and soil erosion hazard would be the same. Water quality impacts associated with urban runoff would be expected to be reduced only slightly under the Moderate Density Alternative.

The Moderate Density Alternative would therefore be expected to have essentially the same significant hydrology and water quality impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Biological Resources.** The impacts on biological resources associated with the Moderate Density Alternative would be essentially the same as those associated with the proposed project because both involve the same area of physical impact.

The Moderate Density Alternative would therefore be expected to have essentially the same significant impacts on biological resources as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Cultural Resources.** The Moderate Density Alternative would not be expected to reduce the cultural resource impacts associated with the proposed project because the physical extent of the Moderate Density Alternative would be the same as that of the proposed project. The proposed community park and creek corridor areas (where the identified cultural resources of the ranch headquarters and the other abandoned ranch site are located) would remain the same. The land uses proposed for Camp Parks are also the same and would therefore potentially affect the prehistoric and historic resources identified on that portion of the planning area. The extent of project-related grading and subsequent restoration activities would also remain the same, with a similar potential for discovery of buried archeological resources.

The Moderate Density Alternative would therefore be expected to have essentially the same significant cultural resource impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Electromagnetic Fields.** Although the residential land uses proposed adjacent to the 230-kV electric transmission lines would be similar under the Moderate Density Alternative and the proposed project, the Moderate Density Alternative would result in 14% fewer residential units being built. It would reduce the number of residential units built adjacent to the electric transmission line rights-of-way, thereby reducing the number of residents that would be potentially exposed to elevated EMF levels. The Moderate Density Alternative

would be expected to result in incrementally less residents being exposed to elevated EMF levels and would represent a greater level of "prudent avoidance".

This alternative would therefore have less significant impacts associated with the need to disclose potential EMF exposure than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Population and Housing.** Under the Moderate Density Alternative, the number of housing units and their density would be reduced by 14%, thereby reducing the number of affordable units that would be provided. Population would be reduced by a slightly lower percentage due to the generally larger household size associated with lower density housing. This alternative would not have as large an effect in balancing the regional jobs/housing ratio.

The Moderate Density Alternative would therefore be expected to have incrementally less beneficial impacts than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Aesthetics and Visual Quality.** Although the overall number of units and residential density would be lower under the Moderate Density Alternative, the overall visual quality impacts would essentially be the same under the Moderate Density Alternative as under the proposed project because the extent and character of the development-related visual impacts would remain essentially the same. Both would transform existing views onto the site and from Dougherty Road from rural to urban over the same portions of the planning area. Landform alterations due to grading, subsequent restoration, and landscaping in relationship to the incrementally lower density and somewhat larger individual lot sizes would essentially be the same under the Moderate Density Alternative and the proposed project. The visual difference between lower residential densities and incrementally larger lots of the Moderate Density Alternative as compared with the proposed project would not be generally perceptible to viewers.

The Moderate Density Alternative would therefore be expected to have essentially the same significant aesthetic and visual quality impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Growth Inducement.** As discussed under "Public Services and Utilities" above, the Moderate Density Alternative would require essentially the same infrastructure extensions as the proposed project. These extensions would be extended in the same way and would therefore result in the same growth inducement as that associated with the proposed project.

The Moderate Density Alternative would therefore be expected to have essentially the same significant growth-inducing impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.



## **Concentrated Development Alternative**

### **Project Description**

The Concentrated Development Alternative would involve the development of a maximum of 11,000 dwelling units on 1,840 residential acres within the Dougherty Valley planning area, instead of the 2,224 acres of the Project, Lower Density, and Moderate Density Alternatives (Table 3-6). A proposed land use scenario (Figure 3-14) would develop the planning area with the same maximum number of residential units as the proposed project, but at a generally higher residential density in the center of the planning area to provide for more open space around the perimeter.

Developing the site under the Concentrated Development Alternative would result in the same number of residential units, population, and ADTs as the proposed project. However, it would result in a smaller area of physical impact in the planning area and 12% more open space.

The Concentrated Development Alternative is considered the next environmentally preferred alternative, after the No Project Alternative. It was not proposed for development because its impacts are only incrementally less significant than those of the Project Alternative and these factors are expected to be outweighed by the nonenvironmental (housing and fiscal) benefits of the proposed project.

The Concentrated Development Alternative is described in more detail in Chapter 3, "Project Description".

### **Evaluation of the Concentrated Development Alternative**

The Concentrated Development Alternative was evaluated for its impacts using the environmental setting information contained in Chapters 4-15. Anticipated impacts are identified in relationship to those identified in the DVSP impact analysis, which should be referenced in conjunction with this evaluation.

In general, the Concentrated Development Alternative would have essentially the same significant impacts on public services and utilities, circulation, air quality, and noise as the proposed project. It would generally have less significant impacts associated with land use, soils and geology, hydrology and water quality, biological resources, cultural and historical resources, and aesthetics and visual quality. It would have somewhat greater impacts associated with EMFs.

**Land Use.** Although the Concentrated Development Alternative would result in the same total maximum number of residential units in the planning area, they would be clustered more densely than under the proposed project. This concentration of development provides for more open space buffer areas around the perimeter of the planning area, providing more separation between onsite and offsite land uses. This slightly reduces the



significance of the land use impacts associated with the relationship between dissimilar residential development. The impacts of the Concentrated Development Alternative concerning general plan policies associated with growth management and public services would essentially be the same because it would have the same land use conversion effects as the proposed project. Impacts associated with loss of agricultural land and open space would be reduced under the Concentrated Development Alternative because the physical area of urbanization would be reduced and the amount of open space would be increased. Incompatibility impacts with Camp Parks would be somewhat greater because more residents would be concentrated closer to the interface between development and the base.

The Concentrated Development Alternative would therefore be expected to have essentially the same land use impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Public Services and Utilities.** The Concentrated Development Alternative would generate the same demand for most public services, such as police and fire services, schools, and parks. In addition, it would require the same public facilities infrastructure as the proposed project. Although the physical extent of such infrastructure would remain essentially the same, demand factors associated with more multifamily residential development would somewhat decrease the amount of water and wastewater. The physical placement and costs associated with the delivery infrastructure would remain essentially the same. Construction-related impacts would essentially be the same under either alternative because the intensity and duration of construction activities would be expected to be the same regardless of the number of units ultimately constructed.

The Concentrated Development Alternative would therefore be expected to have essentially the same public services and utilities impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Circulation.** The Concentrated Development Alternative would generate less ADTs than the proposed project because the overall trip generation rate for this alternative would be slightly less for multifamily residences, which tend to generate fewer daily trips than single-family residences. This lower trip generation rate, combined with the potential for greater public transit use associated with residents of multifamily housing would result in fewer overall trips, distributed in the same manner as those of the proposed project. This reduction would translate into greater intersection and roadway capacities in the project vicinity in the 2010 with-project scenario. However, the mitigation measures to improve area circulation infrastructure would essentially be the same because background growth would require essentially the same kinds of measures and only the proportionate share attributed directly to the project would be reduced. Secondary impacts associated with these improvements would remain the same.

The Concentrated Development Alternative would therefore be expected to have less significant circulation impacts than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Air Quality.** Reduced ADTs would translate into reduced vehicle emissions and less adverse air quality impacts under the Concentrated Development Alternative. Although direct impacts are expected to be partially mitigated under this alternative and the proposed project, both would contribute to significant direct and cumulative impacts. Construction-related air quality impacts would essentially be the same because the extent and duration of construction activities are expected to be the same regardless of the number of units ultimately constructed.

The Concentrated Development Alternative would therefore be expected to have slightly less significant air quality impacts than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Noise.** The reduction in vehicular traffic volumes on roadways throughout the planning area and vicinity could reduce onsite and offsite noise impacts from project-generated traffic. The 60-dB- $L_{dn}$  contour would be moved, reducing the number of noise-sensitive residential units exposed to significant traffic noise. Although direct impacts both onsite and offsite are expected to be mitigated under this alternative and the proposed project, both would contribute to significant cumulative impacts based on background growth in the area. Because the Camp Parks training uses are assumed to continue, the noise generated by those uses would be the same. Construction-related noise would essentially be the same because the extent and duration of noise-generating activities are expected to be the same regardless of the location of units ultimately constructed.

The Concentrated Development Alternative would therefore be expected to have slightly less significant noise impacts than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Soils and Geology.** The Concentrated Development Alternative would reduce the significance of soils and geology impacts by reducing the physical extent of development and the amount of grading necessary to stabilize development areas. The scale of topographic alterations, the potential for increased soil erosion, and the amount of grading in hillsides with slopes of 26% and greater would be reduced. The level of hazard associated with landslides, slope failures, liquefaction, and shrink-swell would also be slightly reduced. However, the planning area would be exposed to the same seismic groundshaking intensity as under the proposed project.

The Concentrated Development Alternative would therefore be expected to have less significant soils and geology impacts than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Hydrology and Water Quality.** The smaller physical extent of ground-surface disturbance within the drainage areas of the planning area would increase rainfall infiltration rates and reduce the impermeable surface area. This would reduce runoff in relationship to that expected under the proposed project. Surface drainage facilities would be expected to maintain offsite flows in Alamo and Coyote Creeks at the same or lower level.



Water quality impacts associated with the development of the planning area under either alternative would be slightly reduced because the extent of disturbed soil areas and soil erosion hazard would be reduced. Water quality impacts associated with urban runoff would be expected to essentially be the same as those associated with the proposed project.

The Concentrated Development Alternative would therefore be expected to have less significant hydrology and water quality impacts than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Biological Resources.** The Concentrated Development Alternative would have less significant impacts on biological resources than the proposed project because of the larger amount of open space that would be preserved under the Concentrated Development Alternative. Although most of the areas that would be preserved would be annual grassland areas with marginal habitat value, the net effect of preserving 12% more open space improves the extent of foraging areas and may enhance the value of habitat that would be preserved under either alternative.

The Concentrated Development Alternative would therefore be expected to have less significant impacts on biological resources than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Cultural Resources.** The Concentrated Development Alternative would not be expected to substantially reduce the cultural resource impacts because the land use scenario under the Concentrated Development Alternative would include the proposed community park and creek corridor areas (where the identified cultural resources of the ranch headquarters and the other abandoned ranch site are located). The land uses proposed for Camp Parks are also the same and would therefore potentially affect the prehistoric and historic resources identified on that portion of the planning area. The extent of project-related grading and subsequent restoration activities would be reduced, however, providing less chance of accidental construction-related discovery of buried archeological resources.

The Concentrated Development Alternative would therefore be expected to have essentially the same cultural resource impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Electromagnetic Fields.** The number of residential units developed adjacent to the 230-kV electric transmission lines would be expected to be proportionately greater than that of the proposed project because the Concentrated Development Alternative focuses higher density residential land uses around the transmission rights-of-way. This would be expected to result in incrementally more residents being exposed to elevated EMF levels.

This alternative would therefore have increased significant impacts associated with the need to disclose potential EMF exposure. No significant impacts would be entirely eliminated by this alternative.

**Population and Housing.** The Concentrated Development Alternative would be expected to provide a greater number of small-lot single-family units and larger multifamily



units, which may tend to be more affordable to a larger number of Tri-Valley residents. The overall population would be decreased slightly due to the generally smaller household size associated with higher density. However, because the number of total households would be the same as that associated with the proposed project, the Concentrated Development Alternative would have an incrementally larger effect in balancing the regional jobs/housing ratio.

The Concentrated Development Alternative would therefore be expected to have incrementally greater beneficial impacts than the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Aesthetics and Visual Quality.** The Concentrated Development Alternative would have incrementally less adverse visual quality impacts than those associated with the proposed project because of the reduced extent of development-related visual impacts. Somewhat more open space would be retained under the Concentrated Development Alternative; both alternatives would transform existing views onto the site and from Dougherty Road from rural to urban over the central part of planning area. However, the project alternative would have the benefits of less dense and more varied residential development patterns compared to the Concentrated Development alternative.

On balance, the Concentrated Development Alternative would therefore be expected to have essentially the same significant impacts on aesthetics and visual quality as the proposed project. No significant impacts would be entirely eliminated by this alternative.

**Growth Inducement.** Essentially the same infrastructure extensions would be required by the Concentrated Development Alternative as under the proposed project. These extensions would be extended in the same way and would therefore result in the same growth inducement as those associated with the proposed project.

The Concentrated Development Alternative would therefore be expected to have essentially the same significant growth-inducing impacts as the proposed project. No significant impacts would be entirely eliminated by this alternative.

### **Offsite Development Alternative**

The Offsite Development Alternative would involve developing the project in the Eastern Dublin planning area in unincorporated Alameda County (Figure 3-15). The Offsite Development Alternative would leave the Dougherty Valley project site undeveloped (as in the No-Project Alternative described above). It would involve a land use scenario with the same major characteristics of the proposed project, which could be applied to the Eastern Dublin planning area as shown in Figure 3-16. Table 3-6 shows that land uses under the Offsite Development Alternative would result in a project of comparable scale to the Dougherty Valley project. The Offsite Development Alternative is described in more detail in Chapter 3, "Project Description".

## **Site Description**

The Eastern Dublin planning area is similar in character to the Dougherty Valley planning area. It is a somewhat larger area, consisting of a valley floor area gently rising to steeper foothills and a series of ridgelines that rise to 1,200 feet in elevation and trend north to south, separated by seasonal streams. Non-native annual grassland is the dominant vegetation type, with a few valley oaks on the eastern parts of the site and some willow-oak riparian habitat along Tassajara and Cottonwood Creeks. The site is dotted with springs and seeps, with an alkali wetland along a tributary to Tassajara Creek. (Wallace, Roberts & Todd 1988.)

The land is generally held in large parcels, averaging over 200 acres in size, and is used for cattle grazing with dry farming of grain and hay crops being raised on the more gentle valley bottomland. Scattered rural residences are located along Tassajara Road and the rural roads throughout the area. A federal prison and the Santa Rita Rehabilitation Center are located in the southwest portion of the planning area. (Wallace, Roberts & Todd 1988.)

Access to the Eastern Dublin planning area is provided by I-580 and interchanges at Tassajara/Hopyard Roads, Fallon/El Charro Roads, and Airway Boulevard/Arnold Roads form the western border of the area. Tassajara Road traverses the area, providing access into Contra Costa County to the north. (Wallace, Roberts & Todd 1988.)

## **Project Description**

The Offsite Development Alternative would hypothetically relocate the land uses proposed in the DVSP (as described in Chapter 3, "Project Description") to the Eastern Dublin planning area (Figure 3-16). The project would result in a total of 11,000 dwelling units at the same densities as proposed in the DVSP. In addition, the existing Santa Rita Rehabilitation Center uses would be retained or replaced by similar uses. A business park land use would be proposed near I-580 and Tassajara Road, and somewhat more open space would be maintained in the planning area because of its larger size. Public facilities and infrastructure needs would essentially be the same as those addressed in the DVSP. The Offsite Development Alternative would involve the same number of residential units, project population, and ADTs.

## **Evaluation of the Offsite Development Alternative**

An environmental setting study has been prepared for the Eastern Dublin planning area by the City of Dublin for use in evaluating a general plan amendment and specific plan for this site (Wallace, Roberts & Todd 1988).

Anticipated impacts are identified in relationship to those identified in the DVSP impact analysis, which should be referenced in conjunction with this evaluation.



## Land Use

Land use impacts are expected to be essentially the same under the Offsite Development Alternative as under the proposed project.

The Offsite Development Alternative project would be slightly changed to add business park uses adjacent to I-580 and accommodate the Santa Rita Rehabilitation Center. Residential land uses would be the same as those proposed in the DVSP. Over 3,200 acres of existing agricultural and rural residential land uses would be converted to urban uses, mostly along the freeway and center of the planning area (Figure 3-16). Open space would be designated to preserve the major ridgelines and provide a compatible land use buffer between the development and Camp Parks and the Tassajara Creek Regional Park staging area to the west, undeveloped grazing lands in Contra Costa County to the north, and unincorporated Alameda County to the east. The project would require resolution of jurisdictional Spheres of Influence between Dublin and Livermore.

**Public Services and Utilities.** Most public services and utilities would need to be provided to the Eastern Dublin planning area. The availability of public service and utility extensions and the scale of the needed infrastructure extensions is similar to that associated with the Dougherty Valley planning area.

**Circulation.** Circulation and traffic impacts would be less widespread than those associated with the proposed project. Direct access to I-580 and generally less difficult terrain would tend to concentrate circulation impacts on the three adjacent interchanges and surrounding arterial roads in Dublin and the Dublin-Livermore Valley. There would be minimal direct effects on existing residential neighborhoods.

**Air Quality.** Although air quality impacts would essentially be the same as those associated with the proposed project, proximity to I-580 and developing employment centers, combined with adjacent access to BART, would reduce overall vehicle miles traveled for residences and have proportionately beneficial air quality impacts.

**Noise.** Noise impacts would essentially be the same as those associated with the proposed project. Noise impacts from I-580 would have substantial adverse impacts on adjacent residential uses. Noise from Camp Parks would have less effect on residential uses because of the greater distances to noise sources and the intervening open space areas that would provide a buffer. Conversely, noise from the Livermore airport on the south side of I-580 would be more significant for residential uses.

**Soils and Geology.** Although soils and geologic conditions are similar in both planning areas, development in less steep terrain would make grading impacts less significant in the Eastern Dublin planning area. Only a small percentage of development would occur on slopes of 26% and greater. Seismicity impacts would essentially be the same.

**Hydrology and Water Quality.** The extent of onsite and offsite hydrology and water quality impacts would essentially be the same as those anticipated under the proposed



project but would be felt primarily on the Tassajara and Cottonwood Creek drainages instead of the Alamo Creek drainage.

**Biological Resources.** Impacts on biological resources would be less significant under the Offsite Development Alternative. Large portions of the Eastern Dublin planning area that would be developed have been developed previously or have been subjected to dryland farming. Sensitive riparian and wetland habitats and seeps generally are located in areas that would be retained in open space. A larger proportion of the planning area would be retained as cohesive open space areas, contiguous with large expanses of open space to the north and east.

**Cultural Resources.** Impacts on cultural resources would be expected to be more significant because of the extent of resources that would be affected. The Eastern Dublin planning area contains at least 12 potentially significant historical resources, eight of which are in areas that would be developed. Three of five prehistoric archeological isolates and an archeological site also are located in areas that would be developed.

**Electromagnetic Fields.** No major electric transmission lines cross the Eastern Dublin planning area, and no other major sources of EMFs are known to affect the site. Impacts associated with EMFs would be less than those described for the proposed project.

**Population and Housing.** The effects on area jobs/housing balance would be expected to be similar to those described for the proposed project, although the planning area is located closer to existing and planned employment centers in Pleasanton and Livermore.

**Aesthetics and Visual Quality.** Visual impacts would be expected to be more visible to existing offsite developed areas. Grading and land form alteration would be visible from I-580. However, the actual scale of impact would be less.

**Growth Inducement.** Because of its location along the I-580 corridor and physical separation from existing undeveloped areas to the north and east, developing the Eastern Dublin planning area would be less likely to induce growth related to infrastructure extensions of needed services and facilities.

## **ALTERNATIVES NOT SELECTED FOR DETAILED STUDY**

### **Existing San Ramon General Plan Alternative**

The presently adopted San Ramon General Plan allows for 3,380 homes in Dougherty Valley. This number was set as part of the Citywide General Plan revision program adopted in November 1986, which dealt with only the Shappell portion of Dougherty Valley.

The Windemere portion of the valley was not included in the city's planning area at that time. Neither this alternative nor any other alternative in the 3,500-dwelling unit range were chosen for detailed study because:

- they did not include the entire Dougherty Valley,
- the city has chosen to consider a review of the larger Dougherty Valley as part of its specific plan program, and
- the density restrictions are not relevant to consideration of the entire Dougherty Valley.

### **Open Space Acquisition**

Most or all of the site could be acquired by a public agency (e.g., the East Bay Regional Park District) for use as passive open space. The site is located strategically in the north-south open space corridor that now exists in the East Bay, separating development along San Francisco Bay from communities in the Tri-Valley region, including Dublin. This solution, however, has the following disadvantages.

- **Lack of Funds.** Although the EBRPD has funds available for parkland acquisition, those funds were earmarked for implementation of specific projects by the bond issue that made the funds available.
- **Lack of Unique Features.** The limited budget for park district acquisition in the area may be best reserved for properties with higher visibility or major botanical or wildlife values, or protection of rare and endangered species or other unique values.
- **Potential Land Dedications.** The EBRPD has not indicated a desire to acquire this area and instead has relied on land dedications as conditions of development approval to gain new facilities in the general area.

### **City of San Ramon Specific Plan**

The City of San Ramon is presently considering development of the Dougherty Valley planning area under the "Dougherty Valley Growth Management and Specific Plan". This specific plan is similar to the specific plan under consideration by the County. Both specific plans share a similar physical arrangement of land uses and development densities

and intensities. The City of San Ramon specific plan was not selected for study as an alternative to the County project because:

- the San Ramon specific plan is so similar to the project that it was not seen as offering a reasonable alternative to the project and
- significant adverse effects associated with the project could not be eliminated or substantially reduced by the San Ramon specific plan.

### **Increased Residential Development**

The project site could physically accommodate a higher number of homes than the current limitation of 11,000 dwellings. However, a higher count would further burden the ability to provide adequate sewer, water, and circulation improvements that meet the growth management standards of the County. Because CEQA requires a good faith analysis of a worst-case scenario and no environmental benefits could be anticipated for considering higher densities, increased residential development was not analyzed further.

### **Nonresidential Urban Use**

Other possible alternatives for the site include commercial, industrial, or institutional use. These uses, however, would require similar or greater environmental disruption, and traffic access would be a particular problem with the Bishop Ranch and Hacienda Business Parks located only minutes away. The need is for homes to provide close-in opportunities for workers to live by these job centers. Development of major nonresidential areas would cause a need for even more homes for project workers.

### **Sanitary Landfill Alternative**

Dougherty Valley was at one time considered for the development of a sanitary landfill to serve the County's refuse disposal needs. Because of the initial consideration of Dougherty Valley, the County has focused its efforts on the Keller Canyon and Marsh Canyon projects. Both these facilities have been approved by the County, and no further review for additional sanitary landfill sites must be undertaken.





## **Chapter 17. Other CEQA-Required Topics**

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The following topics are among those specifically identified for discussion by the State CEQA Guidelines as part of project environmental impact evaluation (Section 15126 [b],[e],[f], and [g]).

### **SIGNIFICANT UNAVOIDABLE ENVIRONMENTAL EFFECTS**

Significant and unavoidable environmental impacts are identified in the impact discussions in Chapters 4-15 and are summarized in Chapter 3, "Project Description".

### **SHORT-TERM USES VERSUS LONG-TERM PRODUCTIVITY**

The project would be implemented over 15 years, influencing both short-term land use and long-term environmental productivity. The planning area would be incrementally developed over this development horizon, resulting in a long-term commitment of the planning area to suburban land uses.

The cumulative long-term effects of the project are identified at the end of each topic section in Chapters 4-15 if they are considered to be potentially significant.

Implementing the project would result in the following short-term uses versus long-term productivity considerations:

- conversion of approximately 6,000 acres of undeveloped open space and seasonal grazing/dry farming land, including approximately 2,000 acres of "farmland of local importance" to urban uses, which will result in a long-term loss of the ability of the land to produce food and fiber;
- loss, degradation, or fragmentation of 3,911 acres of annual grassland used by wildlife, including a number of special-status plant and animal species;
- elimination or degradation of valley oak savanna, valley oak riparian woodland, and individual oak trees;
- elimination or degradation of 2.6 acres of willow riparian forest, 0.4 acre of freshwater marsh, 2.0 acres of alkali meadow, and 2.1 acres of seep, including

loss or degradation of stockponds and lesser degradation of perennial and seasonal creeks; and

- the possible long-term health risks associated with developing residences within EMFs associated with existing high-voltage electric transmission lines.

The project proponents believe the project is justified now rather than later because it would supply the need for housing in the Tri-Valley region at all price ranges and because the planning area is centrally located and close to workplaces in the area (PBR 1992).

## **SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES**

Implementing the project would result in an irretrievable commitment of energy and other nonrenewable resources used in building materials to construct the project. In addition, the project would result in the irreversible environmental changes described above regarding short-term uses versus long-term productivity.

These environmental changes include irreversible changes to biological resources through conversion of open space and agricultural lands to urban uses. Urbanization is irreversible and generally leads to further urbanization with associated degradation of the environment.

## **GROWTH-INDUCING IMPACTS OF THE PROJECT**

The EIR must discuss how the project could directly or indirectly lead to economic, population, or housing growth. A project may be growth inducing if it removes obstacles to growth (which would tax community service facilities) or encourages other activities causing significant environmental effects. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment (State CEQA Guidelines, Section 15126[g]).

The Dougherty Valley project would induce growth because it would directly introduce a significant amount of housing and a large number of new residents into the Tri-Valley region. The project is also expected to induce indirect economic growth in the area.

In addition, the project is growth inducing because it would extend public services and infrastructure closer to the undeveloped Tassajara Valley, thereby removing obstacles to secondary growth.

Growth-inducing effects of the project would primarily be due to the conversion of land in the Dougherty Valley area from open space and agricultural lands to urban uses and the extension of urban services and roads to the area.



The planning area is in an unincorporated portion of Contra Costa County. From a policy standpoint, the proposed project is growth inducing because it would allow growth to occur at a greater intensity than is now possible in the planning area and adjacent Tassajara Valley.

The conversion of land in the planning area from agricultural uses to residential, commercial, and some open space uses will create growth pressures for the remaining rural areas adjacent to the east and within the ULL to be more intensively developed. Some of these lands are currently under Williamson Act contracts to preserve agricultural land uses. Landowners of these properties may be induced to file notices to remove their properties for future development (Figure 4-2).

Extension of service area boundaries may include areas other than those proposed for development under the specific plan. In addition, extending Windemere Parkway east from the planning area to connect to Camino Tassajara Road will induce growth pressures in Tassajara Valley by removing obstacles to access and extending other public services and utilities to the area.

Each of the above factors would contribute to the growth-inducing effects of the project and could lead to subsequent development activities that could cause significant environmental effects.

## **EFFECTS NOT FOUND TO BE SIGNIFICANT**

The initial study attached to the NOP (Appendix A) identifies the project's effects not found to be significant (State CEQA Guidelines, Section 15128).

## **AREAS OF CONTROVERSY**

The following are known areas of controversy:

- public facilities and utilities infrastructure capacity (especially water service);
- circulation impacts on the adjacent roadway network and the need for additional infrastructure;
- impacts on sensitive environmental features, such as wetlands and wildlife resources; and
- cumulative impacts on regional land use, traffic, open space, and visual resources on currently undeveloped hillsides and ridgelines.

These areas are addressed in Chapters 4-15 of this EIR. Cumulative impacts are addressed in those chapters where they are significant and are discussed below.

## **CUMULATIVE IMPACTS**

The EIR must discuss the cumulative impacts of the project and other, past, present, and reasonably foreseeable future projects where these impacts are significant. "Cumulative impacts" refers to two or more individual effects that, when considered together, are considerable or which compound or increase other environmental impacts. The cumulative impacts may be from the individual impacts of a single project, or a number of separate projects considered together. Cumulative impacts can result from the incremental impacts of the project and "other closely related past, present, and reasonably foreseeable probable future projects" taking place over a period of time that may be individually minor, but are collectively significant (State CEQA Guidelines, Section 15130).

### **Cumulative Projects**

The geographic setting of the cumulative analysis in this EIR is the Tri-Valley region. The regional setting is described in Chapter 1, "Introduction", and Chapter 4, "Land Use". The projects that have been considered for the cumulative impact analysis in the EIR are from a land use projection being used for the CCTA Tri-Valley Circulation Study. Under direction of CCTA, future-year land use projections by ABAG (Projections 90) were refined by Economic & Planning Systems for the Tri-Valley area to serve as a centralized database for the Tri-Valley Circulation Study and ultimately to assign regional traffic impact mitigation responsibility. The resulting household and employment projections represent disaggregation of ABAG projections with reference to buildout of existing Tri-Valley jurisdiction general plans, various proposed GPAs, and development projects that are currently under consideration by these jurisdictions. The method used to create this cumulative projection is described in more detail in Appendix D, "Circulation". A table that lists the cumulative population and employment projections by geographic area is found in Appendix B.

This cumulative projection forms the basis of the quantitative cumulative impact analysis for the circulation, air quality, and noise sections of this EIR and the qualitative analysis of cumulative impacts of the other sections. Some of the proposed projects in the Tri-Valley area that were included in this cumulative growth projection are discussed below.

#### **Tassajara Valley**

The Tassajara Valley Property Owners Association, Inc. (TVPOA) has submitted a proposal to Contra Costa County for the Tassajara Subdivision. This project involves over 60 landowners and about 4,500 acres of land in Tassajara Valley on both sides of Camino Tassajara from the southern boundary of Blackhawk to the Alameda/Contra Costa County

line. TVOPA proposes approximately 5,000 dwelling units at a density of about 1.5 dwelling units per gross acre, with more than half of the land to be reserved in open space.

The project includes a GPA and rezone application that have been submitted to the County. An EIR would be prepared before the project could be considered for action by the County. The implementation schedule is unknown.

### **East Dublin**

The East Dublin Planning Area is located in Alameda County north of I-580 and generally east of Camp Parks, bordering Contra Costa County and the City of Dublin. The city is considering annexing this approximately 7,400-acre area for development of 11,500 to 20,800 dwelling units and 11-18 million square feet of office/commercial uses. This project is described more fully in Chapter 16, "Alternatives", as an offsite alternative location for the Dougherty Valley project.

The project includes a GPA, specific plan, rezoning, and annexation to the City of Dublin. A draft EIR has been recently released for public review. The implementation schedule is unknown.

### **Western Dublin**

This project is located between Castro Valley and the City of Dublin in Alameda County, between I-580 and the Contra Costa County line. A group of landowners and developers propose to develop the 3,255-acre area to permit construction of 3,260 dwelling units, a championship golf course, and a community/commercial center.

The project includes a GPA, specific plan, rezoning, and annexation to the City of Dublin. The draft specific plan for the Western Dublin GPA was released in 1991, and the draft EIR for the GPA and specific plan was released in January 1992. The city is considering action on the project. The implementation schedule is unknown.

### **South Livermore Valley**

The South Livermore Valley Vineyard Area is comprised of 14,570 acres. The holding capacity of the Vineyard Area is approximately 3,025 units, and the area contains 7,000 acres of cultivable land. The Vineyard Area Plan will be a special section of the revised Alameda County General Plan.

### **North Livermore Valley**

The North Livermore General Plan Amendment area is located in Alameda County north of I-580, south of the Contra Costa County line and west of the Vasco Road/Altamont Pass area. The City of Livermore has established the approximately 15,500-acre North



Livermore Planning Area to encompass the Las Positas Valley and Doolin and Collier Canyons. It also includes about 200 acres of the East Dublin Planning Area (described above) around Fallon Road in the area of the Santa Rita Rehabilitation Center.

The project includes a GPA and potential annexation of the area to the City of Livermore. The GPA consists of four population scenarios for the planning area (10,000, 20,000, 30,000, and 45,000) and would also involve commercial and employment-generating land uses to serve the community. The draft EIR for the North Livermore GPA was released for public review in February 1992. Responses to comments have been prepared and the project is being considered for action by the city. The implementation schedule is unknown. Alameda County is engaging in a similar planning effort for the North Livermore Valley and surrounding areas.

### **Significant Environmental Effects of Cumulative Projections**

The project's cumulative effects related to its incremental contribution to the projected growth in the Tri-Valley region are identified and discussed by topic in Chapter 4-15 and are summarized below.

#### **Land Use Effects**

The project would have the following cumulative impacts as one of the projects that contribute to the projected cumulative growth in the Tri-Valley region:

- cumulative loss of agricultural land and open space and
- cumulative pressure for urban growth beyond the Urban Limit Line.

#### **Public Services and Utilities Effects**

The project would have cumulative effects on area public service providers' ability to maintain service levels as one of the projects that contribute to the projected cumulative growth in the Tri-Valley region. The projects's significant cumulative public services and utilities impacts are associated with its contribution of direct impacts for the following services:

- collection and treatment of wastewater,
- distribution and treatment of potable water,
- provision of recycled water,
- disposal of solid waste,

- demand for CHP Patrol to provide traffic-related law enforcement service,
- demand for County Sheriff's deputies and necessary equipment for other law enforcement service,
- demand for fire protection services,
- demand for elementary and secondary schools and educational services,
- demand for community college facilities and educational services,
- demand for childcare facilities, and
- demand for managed regional open space.

### Circulation Effects

The project would have the following cumulative circulation and traffic impacts as one of the projects that contribute to the projected cumulative growth in the Tri-Valley region.

- LOS F expected on I-680 between Bollinger Canyon Road and I-580 under cumulative no-project conditions;
- LOS F expected on I-580 between Hacienda Drive and Fallon Road under Cumulative no-project conditions;
- LOS F expected on I-680 between Bollinger Canyon Road and I-580 under cumulative with-project conditions;
- LOS F expected on I-580 between Hacienda Drive and Fallon Road under Cumulative With-Project Conditions;
- unacceptable level of service expected at five intersections under 2010 No-Project Conditions;
  - Blackhawk Road/Camino Tassajara,
  - I-680 northbound off-ramp/Bollinger Canyon Road,
  - Alcosta Boulevard/Bollinger Canyon Road,
  - I-680 northbound off-ramp/Alcosta Boulevard, and
  - Santa Rita Road/I-580 eastbound off-ramp;
- drop in LOS from acceptable to unacceptable conditions at three intersections under 2010 With-Project Conditions;

- Camino Tassajara/Diablo Road,
- I-680 northbound off-ramp/Sycamore Valley Road, and
- Sycamore Valley Road/Camino Tassajara;
- further degradation of an unacceptable LOS at two intersections under 2010 With-Project Conditions;
  - Blackhawk Road/Camino Tassajara and
  - Alcosta Boulevard/Bollinger Canyon Road;
- drop in LOS from acceptable to unacceptable conditions at five intersections under Cumulative With-Project Conditions
  - Camino Tassajara/Diablo Road,
  - I-680 northbound off-ramp/Sycamore Valley Road,
  - Dougherty Road/ Crow Canyon Road,
  - Dougherty Road/Dublin Boulevard, and
  - Hopyard Road/I-580 eastbound off-ramp; and
- further degradation of an unacceptable LOS at two intersections under Cumulative With-Project Conditions:
  - Blackhawk Road/Camino Tassajara, and
  - Alcosta Boulevard/Bollinger Canyon Road.

### **Air Quality Effects**

The project would have the following cumulative air quality impacts, as one of the projects that contribute to the projected cumulative growth in the Tri-Valley region:

- cumulative regional increase of carbon monoxide emissions and
- cumulative regional increase of ozone precursor emissions.

### **Noise Effects**

The project would have the following noise impact, as one of the projects that contribute to the projected cumulative growth in the Tri-Valley region:

- cumulative exposure of existing and planned noise-sensitive locations to noise levels in excess of county noise standards.



### **Biological Resource Effects**

The project would have the following biological resource impacts, as one of the projects that contribute to the projected cumulative growth in the Tri-Valley region:

- cumulative loss and fragmentation of annual grassland habitat for wildlife and special-status wildlife species and
- minor potential for cumulative loss of San Joaquin kit fox habitat.

### **Housing, Population and Employment Effects**

The project would have significant cumulative effects associated with its direct impacts to regional housing, population, and employment conditions, as one of the projects that contribute to the projected cumulative growth in the Tri-Valley region:

- cumulative increase in Tri-Valley population,
- cumulative addition of residential units to the Tri-Valley region housing supply, and
- incremental improvement in regional jobs/housing ratio.

### **Visual Effects**

The project would have the following cumulative visual quality impact, as one of the projects that contribute to the projected cumulative growth in the Tri-Valley region:

- cumulative regional loss of rural/pastoral visual character, reduced views of open space, and loss of scenic views in the region.



## Chapter 18. Citations

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#### PERSONAL COMMUNICATIONS

- Agnew, Bob. Associate civil engineer. Contra Costa County Flood Control and Water Conservation District, Martinez, CA. January 22, 1992 - letter to Jim Cutler on the hydrologic effects of the proposed Dougherty Valley development.
- Burke, Pat. Franchise administrator. Contra Costa County Administrators Office, Martinez, CA. June 2, 1992 - telephone conversation.
- Brewer, Donna. Biologist. U.S. Fish and Wildlife Service, Ventura, CA. July 1, 1991 - telephone conversation.
- Brode, John. Fisheries biologist. California Department of Fish and Game, Rancho Cordova, CA. July 30, 1991 - meeting.
- Carrington, Dennis. Senior planner. City of Dublin, Dublin, CA. April 23, 1992 - telephone conversation regarding Eastern Dublin Specific Plan.

Clerk of the Board of Supervisors. Contra Costa County, Martinez, CA. January 10, 1992 - telephone conversation.

Cooke, Stephen. Commander. Camp Parks, United States Army, Dublin, CA. April 6, 1992 - telephone conversation.

Crompton, David. Assistant planner. Town of Danville, Danville, CA. April 22, 1992 - telephone conversation and facsimile information regarding Danville zoning and land use designations.

Cutler, Jim. Contra Costa County Community Development Department, Martinez, CA. April 6, 1992 - telephone conversation.

Desante, Dave. Biologist. The Institute of Bird Populations, Inverness, CA. April 1992 - memorandum to Joan Humphrey regarding the results of the 1991 burrowing owl surveys.

DeYoung, Joseph. Acting manager, Mission Division. Pacific Gas and Electric Company, Hayward, CA. May 16, 1991 - letter to Jim Cutler, Contra Costa County Community Development Department.

Dittrich, Michal. Community affairs/government affairs manager. ViaCom Cablevision, Inc., San Ramon, CA. April 10, 1992 - telephone conversation.

Epperly, Skip. Service area coordinator. Contra Costa County Public Works Department, Martinez, CA. April 20, 1992 - telephone conversation.

Foreman, Darryl A. President. Windemere, San Ramon, CA. April 17, 1992 - telephone conversation regarding the purpose of Gruen Gruen and Associates' report; April 21, 1992 - letter and Windemere Parkway Conceptual Grading Plan.

Hansen, George. Consulting herpetologist. Independent consultant, Sacramento, CA. January 18, 25, and July 15, 1988 - telephone conversations.

Harrington, Phil. Engineer. Contra Costa County Flood Control and Water Conservation District, Martinez, CA. April 1, 1992 - telephone conversation regarding flooding issues pertaining to the Dougherty Valley project.

Howtrow, David. Facilities planning analyst. Contra Costa Community College District, Martinez, CA. April 6, 1992 - telephone conversation.

Huffman, Ann. Principal. Huffman & Associates, Inc., Larkspur, CA. September 3, 1991 - summary of San Joaquin kit fox observations in southeastern Contra Costa County.

Jacobsen, M. Thomas, Attorney. McCuthen, Doyel, Brown & Enersen. Walnut Creek, CA. May 8, 1992 - letter to David Bolland.

Jencks, Ken. PBR, San Francisco, CA. April 9, 1992 - telephone conversation.

Johnson, Brenda. Graduate student. University of California, Davis, CA. June 30, 1990 - telephone conversation.

Johnson, Roger. Engineer. Pacific Bell, Walnut Creek, CA. April 10, 1992 - telephone conversation.

Kerri, Richard. Captain, Dublin office commander. California Highway Patrol, Dublin, CA. March 17, 1992 - telephone conversation.

Koch, Thomas J. Foward planning manager. Shapell Industries of Northern California. Milpitas, CA. May 8, 1992 - comments on administrative draft EIR.

Learned, Chris. Director of facilities development. San Ramon Valley Unified School District, San Ramon, CA. March 26, 1992 - telephone conversation and facsimile; April 8, 1992 - telephone conversation regarding information from San Ramon Valley Unified School District master plan.

Lindenmeyer, Tom. Environmental specialist. East Bay Regional Parks District, Oakland, CA. April 7 and 8, 1992 - telephone conversations.

London, Jody. California Public Utilities Commission. March 20, 1992 - telephone conversation.

Lurton, Jinna. Consultant - School Siting. Department of Education, Facilities Division, Sacramento, CA. March 19, 1992 - telephone conversation.

Maestas, Gene. Airport supervisor. Livermore Airport, Livermore, CA. January 10, 1992 - telephone conversation.

McCarthy, William. Project manager. Brown and Caldwell, Inc., Walnut Creek, CA. April 22, 1992 - facsimile comments on Jones & Stokes Associates draft EIR water, reclaimed water, and wastewater sections.

Mitchell, Carol. Livermore district manager. Pacific Gas and Electric Company, Livermore, CA. April 6, 1992 - telephone conversation.

Mongsene, Doug. Lieutenant. Contra Costa County Sheriff's Department, Martinez, CA. April 13, 1992 - telephone conversation.

Moody, Carol. Personnel analyst. San Ramon Valley Unified School District, San Ramon, CA. March 17, 1992 - telephone conversation regarding average number of full-time equivalent employees per school.

Myers, Darwin. Geologist. Darwin Myers Associates, Martinez, CA. May 20, 1992 - memorandum with comments on hydrology and water quality chapters of administrative draft EIR.



Nicholson, Charles. Supervising environmental health specialist. Contra Costa County Health Department, Martinez, CA. March 27, 1992 - telephone conversation.

Probert, Richard. Assistant chief. San Ramon Valley Fire Protection District, San Ramon, CA. March 26, 1992 - telephone conversation; March 30, 1992 - meeting.

Radigonda, Gary. Senior electric distribution engineer. Pacific Gas and Electric Company, Concord, CA. April 30, 1992 - letter to Jim Cutler at the Contra Costa County Community Development Department regarding electromagnetic fields.

Rafferty, Joseph. Colonel. U.S. Army. San Francisco, CA. January 13, 1989 - letter to Darryl A. Foreman; April 7, 1992 - facsimile of Rafferty letter from Clark Morrison to David Bolland.

Rea, N. Teresa. Vice president. PBR. October 8, 1991 - facsimile information to David Bolland.

Simon, Laurie. Wildlife biologist. U.S. Fish and Wildlife Service, Sacramento, CA. January 7, 1992 - telephone conversation.

Smith, Belinda. Planner II. Contra Costa County Community Development Department, Martinez, CA. April 7 and 9, 1992 - telephone conversations.

Snell, John. Senior analyst. Contra Costa County Sheriff's Department, Martinez, CA. March 25 and April 6, 1992 - telephone conversations.

Sproul, Malcolm J. Principal. LSA Associates, Pt. Richmond, CA. August 7, 1990 - letter from Malcolm J. Sproul to Darryl A. Foreman regarding results of reptile and amphibian survey at the Windemere property.

Tomas, Mathew. Senior planner. Contra Costa County Community Development Department, Martinez, California. March 20, 1992 - telephone conversation with Chris Cate.

Troy, David. Associate planner. City of Dublin, Dublin, CA. April 23, 1992 - telephone conversation regarding zoning.

Van Katwyk, Charles. Chief flood control engineer. Alameda County Flood Control and Water Conservation District, Pleasanton, CA. December 5, 1991 - memorandum to Bob Agnew stating the design capacity of Alamo Creek at the Alameda County line.

Warner, David. Branch chief, master planning branch. U.S. Department of the Army, San Francisco, CA. December 16, 1991 - telephone conversation; January 3, 1992 - letter to David Buehler, Jones & Stokes Associates, enclosing pages from draft installation compatible use zone study.

Webb, Bruce. Engineering planner. Dublin-San Ramon Services District, Dublin, CA. June 4, 1992 - facsimile of service area boundary.



## **Chapter 19. Report Preparation**

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This draft EIR was prepared by Jones & Stokes Associates under contract to Contra Costa County. The persons responsible for preparing this report are listed below.

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# California Environmental Quality Act

## NOTICE OF

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Completion of Environmental Impact Report

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Negative Declaration of Environmental Significance

### CONTRA COSTA COUNTY COMMUNITY DEVELOPMENT DEPARTMENT

651 PINE STREET

NORTH WING-4TH FLOOR

MARTINEZ, CALIFORNIA 94553-0095

Telephone: (510) 646-2035

Contact Person: James W. Cutler

**Project Description and Location:** Dougherty Valley General Plan Amendment, Specific Plan and Implementing Project Entitlements, County File #2-91-SR: This is for a planned community of 6,000 acres located to the east of the city of San Ramon in the Dougherty Valley on both sides of Dougherty Valley Road. The site runs from the San Ramon city boundary on the north, and south to the Alameda County boundary. A general plan amendment, specific plan, rezoning, sphere of influence changes annexations and related applications shall be covered in this EIR. The project would allow up to 11,000 dwelling units, a commercial center and substantial open space areas.

The Environmental Impact Report or Justification for Negative Declaration is available for review at the address below:

Contra Costa County Community Development Department  
651 Pine Street, North Wing - Fourth Floor  
Martinez, CA 94553-0095

Review Period for Environmental Impact Report or Negative Declaration: June 8, 1992  
thru July 23, 1992

By



Community Development Department Representative





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